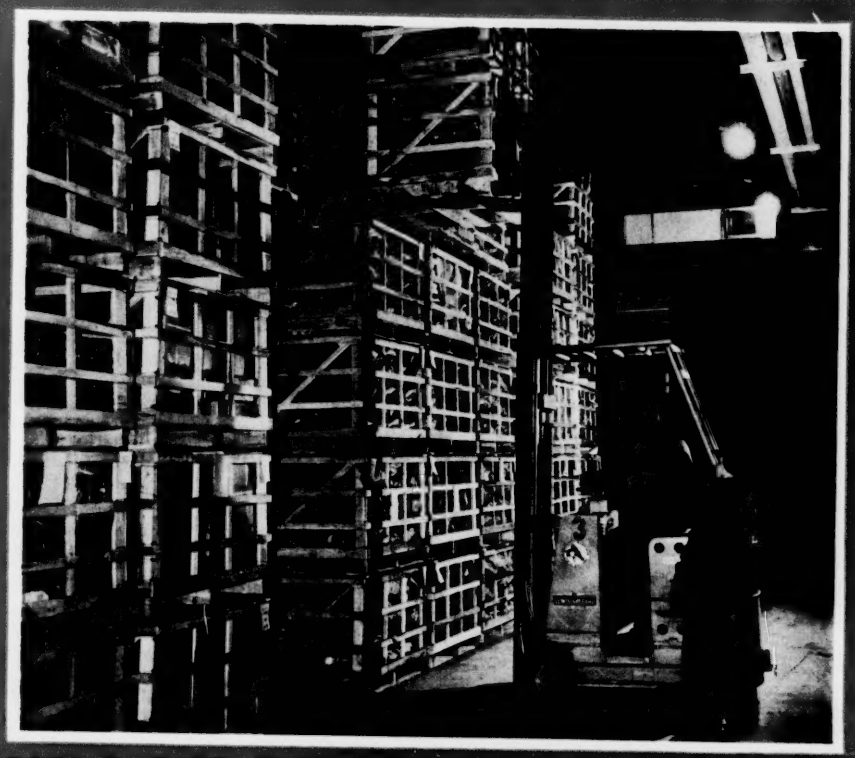
ICE and REFRIGERATION

THE NATIONAL MAGAZINE OF INDUSTRIAL REFRIGERATION

AWA-NARW Convention New Orleans May 5-8



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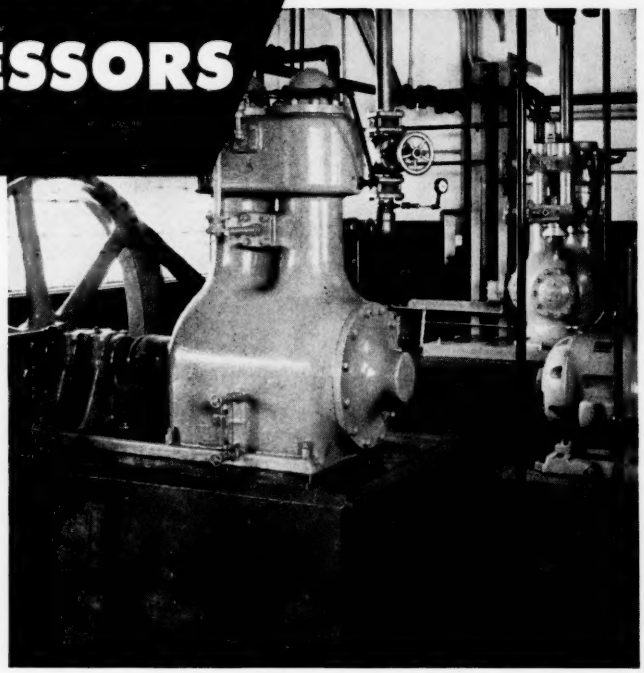
APRIL • 1952

New Freezer Storage Opens For Frozen Foods . . . Page 25

NEW EFFICIENCY FOR REFRIGERATING COMPRESSORS

This compressor is one of thousands lubricated with Texaco. Name of user on request.



...when you use TEXACO CAPELLA OIL (Waxfree)

The new and improved *Texaco Capella Oil (Waxfree)* is the finest on the new ultra-low temperature scene. This outstanding compressor oil assures clean efficient operation — not only throughout an ordinary refrigerating range — but *even at temperatures as low as minus 100°F.*

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3. The only POSITIVE method to prevent door sagging.
4. Allows REVERSAL OF DOOR SWING if necessary.

The Strongest and Most Durable Cold Storage Door Built!

Outside Corner Construction

Inside Corner Construction

"INTERLOK" NO-SAG CORNER CONSTRUCTION *(Pat. Pend.)*

No other cold storage door company can offer the exclusive features of "X-Type" Steel Bracing and "Interlok" No-Sag door construction . . . Specify these features . . . They cost no more.

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Please send me your new catalog on Butcher Boy "X-Type" doors

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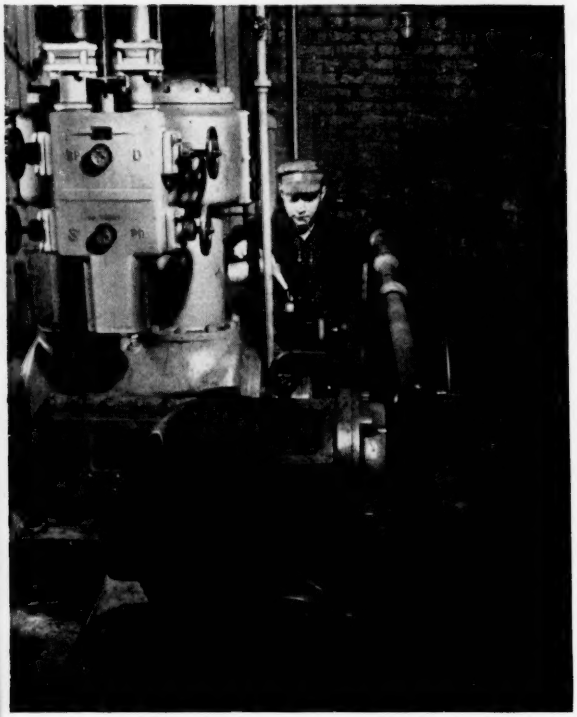
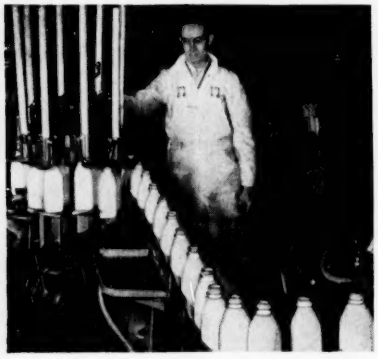


FEW COMPRESSOR DIFFICULTIES have been experienced since Suniso cleared the lines and valves of sticky sludge. Maintenance costs have greatly decreased. Suniso completely cleaned out the system in about 18 months, without the need for a shutdown.

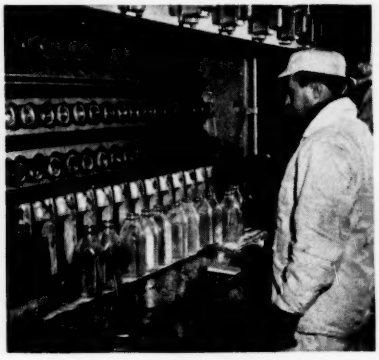
PLANT EFFICIENCY GREATLY INCREASED BY SUN LUBRICANTS

A severe accumulation of sticky sludge clogged the refrigeration lines and froze the automatic valves. Compressor breakdowns were frequent. That was the situation a large dairy products concern was trying to overcome some years ago. There seemed to be no solution to the problem till a Sun man recommended Suniso Refrigeration Oil, pointing out how it had the inherent solvency to clean out the system without a shutdown. His advice was accepted and improved operation was immediately obtained. Large quantities of sludge were removed. In a year and a half, all the lines became completely free and clear, and all the automatic valves resumed their normal functioning.

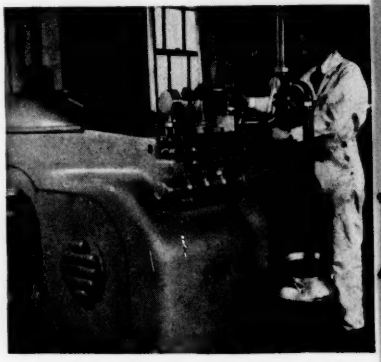
Because of these results and further engineering service, the company has gradually switched to Sun products for all its machines. This has reduced inventories 33 percent, upped production all along the line, and cut maintenance costs. For example, 50 percent has been saved on repairs by using Solnus Oil for the plant's more than 200 electric motors—ranging from ½ hp to 100 hp and from 600 rpm to 3,400 rpm. For a free copy of the illustrated booklet "Suniso Refrigeration Oils," write to Department IR-4.



FEWER REPAIRS ARE NEEDED on the bottle cappers because of Sunvis. The former oil gummed, causing the slides and guides to fail and necessitating as many as six capper shutdowns a day. Now more than one a week is unusual.



95 BOTTLES A MINUTE can be processed continuously by the washer, thanks to Sun Adhesive Pressure Grease. Shutdowns due to open gear failures occurred frequently in the past because the lubricant formerly used would not adhere.



NO CONDENSATION PROBLEM ever arises in connection with the homogenizers. Water can be drained off because Sunvis separates readily from it. Furthermore, Sunvis does not form sludge or gum like the oil it replaced.

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ICE and Refrigeration

VOLUME 122 NUMBER 4

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Published Monthly By
NICKERSON & COLLINS CO.

General Offices
433 N. Waller Ave., Chicago 44, Ill.
Telephones AUstin 7-1303-04-05

WASHINGTON: 1706 L St., N.W.
Washington 6, D.C.

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ICE AND REFRIGERATION, Vol. 122, No. 4. Published monthly at 433 N. Waller Ave., Chicago, Ill., U.S.A., by Nickerson & Collins Co. Yearly subscription in the U. S., $3.00 per year; other countries, $4.00. Single copies, 35 cents. Copyrighted 1952 by Nickerson & Collins Co. Entered as second-class matter August 8, 1891, Chicago, Ill., under the Act of March 3, 1879. Additional entry at Beloit, Wis.

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Ice and Refrigeration is indexed regularly by Engineering Index, Inc., and is microfilmed for library use by University Microfilms.

April, 1952

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DOWN GOES POWER COST AND UP GOES TONNAGE when old evaporators are replaced with modern, Vogt Brine Coolers. The reason . . . maximum evaporating surface packed into a minimum of space with correct design and sound construction the controlling factors.

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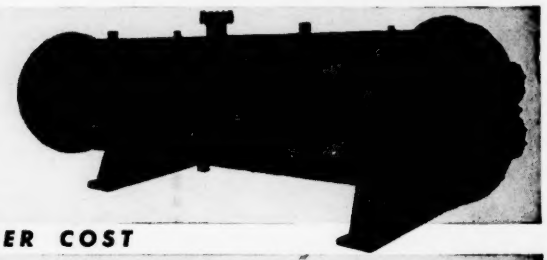
The cooler for closed brine systems in cold storage plants, dairies, packing plants, oil refineries, etc., requiring units of large capacity.



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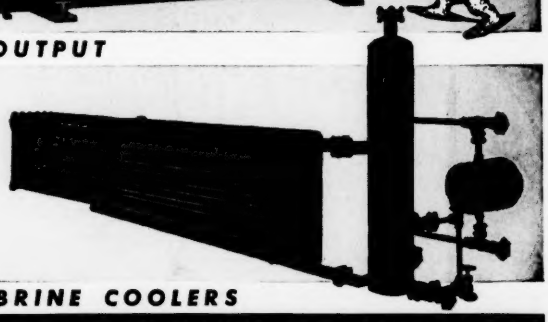

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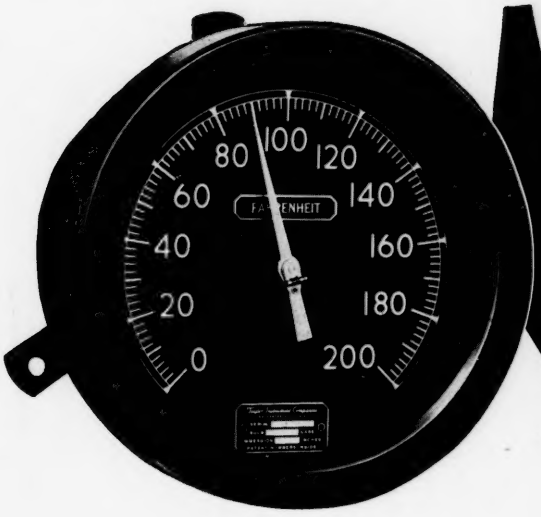

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TEMPERATURE MEASUREMENT!

You'll see an all-new movement, with a new Bourdon spring that provides greater power, for more sensitive indication of temperature changes. The new movement design also eliminates linkage errors.

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Die cast aluminum case may be face or flush mounted, is fume and moisture proof, comes with either double strength sheet glass, shatterproof glass, or anti-glare glass.

Companion pressure gage also available. Ask your Taylor Field Engineer, or write for **Bulletin 98214.** Taylor Instrument Companies, Rochester, N.Y., and Toronto, Canada.

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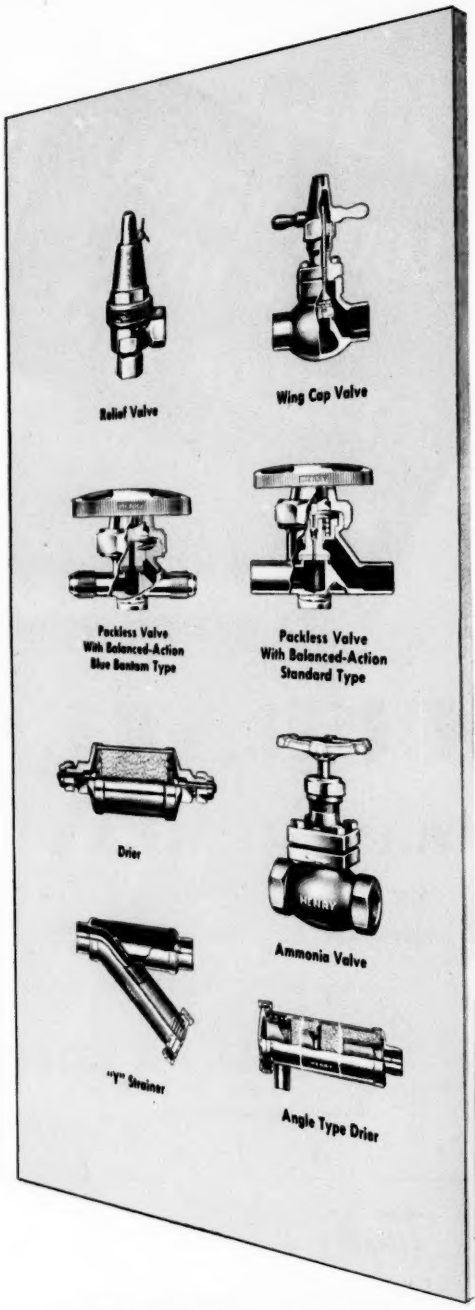

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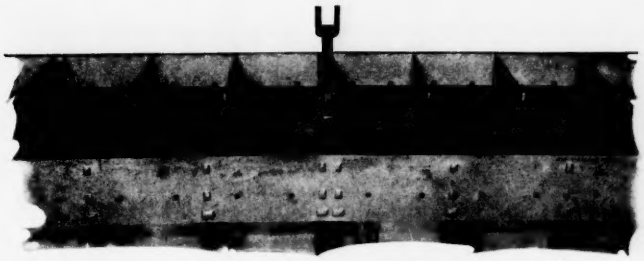

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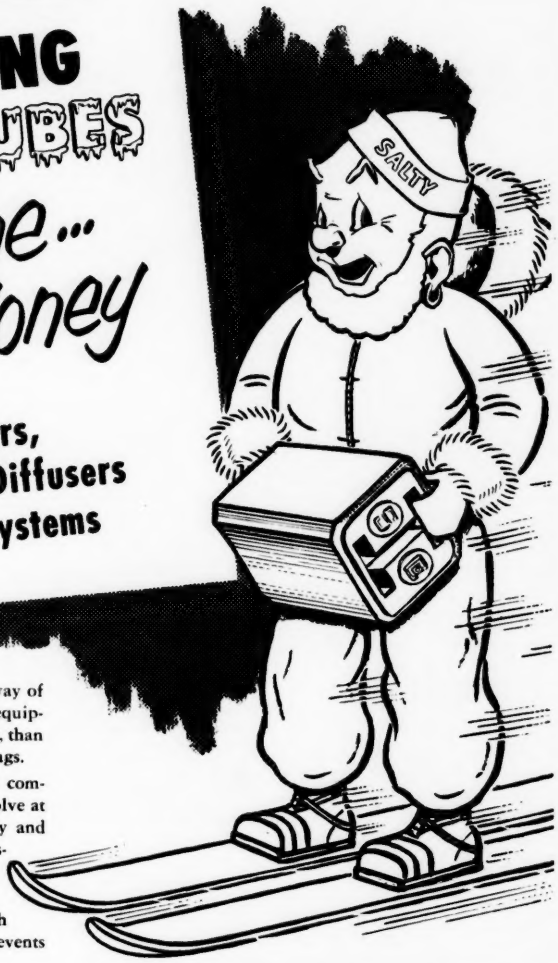

NOW PROFIT by this convenient, dependable way of providing steady operation of refrigerating equipment with less attention, less maintenance effort, than former methods of adding loose salt or salt in bags.

Sterling Kooler Kubes are special heavily compressed 50-lb. refrigeration salt cubes that dissolve at an even rate to strengthen brine continuously and uniformly. They eliminate the labor and guesswork of measuring loose salt.

Kooler Kubes make it possible to maintain brine at the proper *Salometer strength* which substantially reduces product shrinkage and prevents the icing of coils.

Sterling Kooler Kubes save on salt consumption, eliminate the troubles caused by clogging of spray nozzles, and help to eliminate fog in chill rooms.

For better operation with less maintenance, simply place one or more Sterling Kooler Kubes in the pan of each unit cooler or on the spray deck.

Kooler Kubes do the rest . . . slowly dissolving in the recirculating brine for maximum efficiency of the refrigeration equipment. For additional information or technical help, mail coupon at right.

IMPORTANT—For large installations of refrigerating equipment, always investigate the possibility of using the †Lixate Rock Salt Dissolver.

INTERNATIONAL SALT COMPANY, INC.
Scranton 2, Pennsylvania

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In The Spotlight

THIS IS the Pre-Convention issue for the annual AWA-NARW-TRRF meetings to be held in New Orleans May 2-8. Special pre-convention features include the following: A statistical survey of the Refrigerated Warehousing Industry, page 11; welcoming message from the officers pages 13 and 14; the official staff, list and portraits, page 15; the convention program, page 17; reports of committee chairmen, page 20; greetings from allied associations, page 21; a review of The Refrigeration Research Foundation, page 23.

A NEW FREEZER STORAGE for frozen foods has been opened in Chicago. A single floor operation, completely palletized, it provides the utmost efficiency in the handling and storage of perishable products requiring low temperatures. For detailed description and pictures of the new plant see page 25.

ONE-STORY warehouses have other advantages than high piling of goods, including improved efficiency in moving goods to be stored. The problems involved are presented in the article on page 28 by D. O. Haynes.

ICE INDUSTRY compliance with the Federal Wage and Hour Law is not what it should be, according to the Wage and Hour and Public Contracts Division of the U. S. Department of Labor. The article on page 32 gives the latest information and the Department's policy on this subject.

REFRIGERATING PLANTS are generally an enigma to their customers who may have a hazy idea as to how they work. To correct this situation, a program of education and building good will is suggested by the chief engineer of a Tennessee dairy plant. See page 39.

COVER: Shows palletizing operation of crates designed for small packages in plant of Continental Freezers, Chicago, Ill. Note that these crates are being placed on top of pile, which is six high. Story on page 25.

REFRIGERATED warehousemen took an active part in the annual frozen foods convention in Chicago the week of March 3, as reported on page 47.

A NEW REFRIGERATED warehouse has been opened at Hopkins, Minn., by the Merchants Refrigerating Company of New York City. For illustrated description, see page 49.

Letters

Like many other cold storage men and those in the associated industries, we receive our bills for ICE AND REFRIGERATION and we cheerfully pay them. We receive not only our bills, but we receive your publication which is well worth the price. Our engineers read it very carefully and there are always a few copies on the desk in the engine room. I go over it in detail and mark certain articles to which I wish to call particular attention. Being technically trained myself, I especially appreciate those articles which have to do with the technique and the operation of plant and equipment. I find it difficult to throw away the old copies and usually when I do, they are pretty badly cut up as I have clipped articles which I file away for permanent reference. We look forward to receiving ICE AND REFRIGERATION each month.

GEORGE L. GROSS, president
Northern Cold Storage & Warehouse Co.,
Duluth, Minn.

Sincerest congratulations and thanks for the two very fine articles about meat-on-ice in your fine publication (January and February issues).

Copy and layouts were very good and I feel sure the articles will do a great deal toward "firing up" this industry to go out and get this new tonnage that is awaiting it.

PROF. R. W. DAVIS,
Union Ice Company,
San Francisco, Calif.

60 Years Ago

From the April, 1892 issue of ICE AND REFRIGERATION

THE OUTLOOK in the retail ice trade was decidedly "bearish" and indications in several localities were that only exceptional self-control would prevent a bad demoralization of the business during the coming retail season. The cause of the unrest was the abundance of ice in store; but while some reduction in price might be expected to obtain later on, there seemed no valid reason why the cutting of prices and "mutterings of war" should begin as early as the first week in March when the character and length of the retail season could only be guessed at.

ICE PRICES were reported from various sections of the country, the price for delivered domestic running from 20 to 60 cents per 100 lbs.; and for dealers about $2.00 per ton. Dealers in many smaller cities quoted prices for household ice on monthly or annual basis, a forerunner of the present contract ice plan.

THE COLUMBIAN EXPOSITION in Chicago announced awarding of contract to the Hercules Iron Works for supplying cold storage service. The building was to contain not less than 600,000 cubic feet of space. In addition the company proposed to cool every day to a temperature of 38 F, 30,000 gallons of Waukesha water for use on the grounds, and would manufacture from 50 to 60 tons of ice for the daily use of restaurant keepers and others. The plant was to have a refrigerating capacity of 300 tons of ice each 24 hours and was to be one of the finest ever built, costing in the neighborhood of $150,000. In July, 1893, soon after the exposition opened, this plant was completely destroyed by fire, causing a huge loss to the Hercules Iron Works and others.

THE ICE HARVEST for the year was reported over in April. Throughout the country it was exceptionally good. Along and west of the Missouri river, the harvest was made in February and was the largest cut for years. Iowa, Minnesota, Indiana, Illinois and Ohio completed the cut in March and every house was full. The Hudson River and New Jersey lakes cutting extended up to March 11 when soft weather put an end to the work for the season. In Maine the first busy season closed about February 23

"We take no chances with dirt. We insist on Packaged Processed Ice"

SAYS LESTER J. QUINN, FAIRFAX AIRPORT RESTAURANT, KANSAS CITY, KAN.

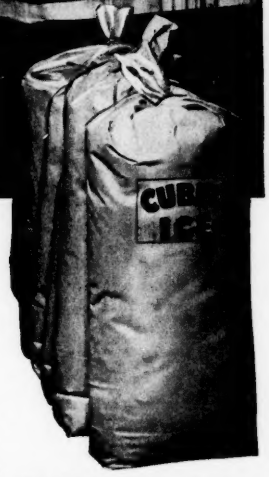
The Fairfax Airport Restaurant occupies one wing of the beautiful airport building of Kansas City's Municipal Airport.

Don't Let Another Month Pass Without Using One-Trip Ice Bags

"Formerly, we had ice delivered in bushel baskets, but it was too often dirty when we received it," reports Mr. Quinn. "Now we insist on Union Paper Ice Bags. Our ice is clean and the bags retard melting so satisfactorily that ice delivered on Saturday will carry over for Sunday."

Union Paper Ice Bags help your own operation, too. Your service is faster because handling time on the platform, in loading and at delivery point is cut down. Customers do their own icing and use more ice.

Yes, the companies using Union Paper Ice Bags get the cream of the business according to reports clear across the country. If you haven't already asked for samples of the one-trip Union Paper Ice Bag, don't delay. Write for free samples now.



Wet-Strength Paper Ice Bags have tremendous strength even when soaking wet... thanks to a water repellent resin that binds the fibres of the paper firmly together.

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Refrigerated Warehousing Industry Takes Inventory of Its Operations

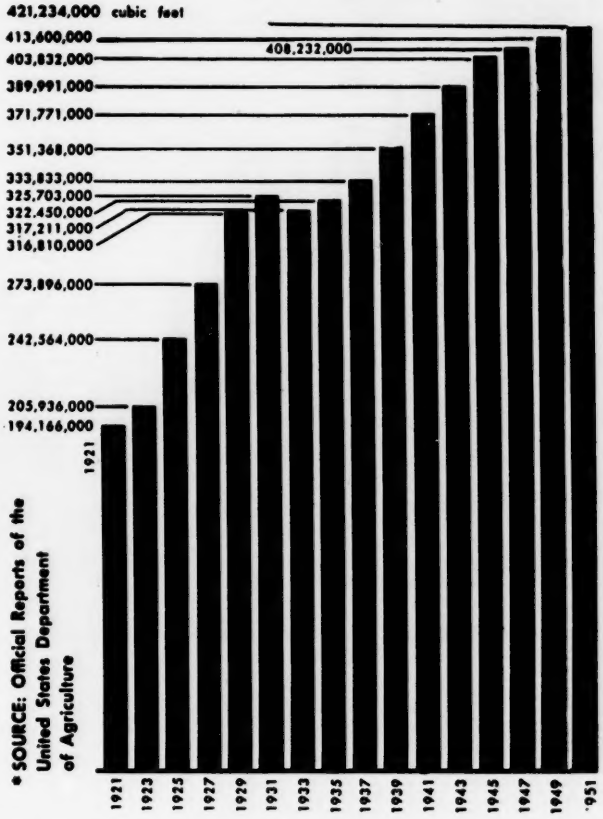
High Points of Survey

Total gross space increased from 413,600,000 cu ft in 1949 to 421,234,000 cu ft in 1951.

Amounts received for storage increased from 6,794,000 tons in 1950 to 7,498,000 tons in 1951.

Number of employees increased from 20,360 in 1948 to 22,300 in 1951.

Wages and salaries increased from $70,040,000 in 1950 to $80,034,000 in 1951.



RESULTS of an industry-wide statistical survey of the refrigerated warehousing industry have been announced by the National Association of Refrigerated Warehouses.

All sizes and types of companies were represented and the geographical distribution was good. After evaluation of this sample, projections were made to give estimated figures for the entire public refrigerated warehousing industry—including public one-crop houses.

Total space increased in 1950 to 415,093,000 cu. ft., and in 1951 to 421,234,000 cu. ft. Practically all of this increase occurred in the sharp freezer range—0 F. and below. As a result of conversions to lower temperatures, there was a drop in cooler space during this period of several million cubic feet.

During 1952 it is expected that an additional 6,482,000 cu. ft. will be added to the industry total, nearly all of it in the freezer and sharp freezer ranges. By the end of this year the industry will have spent about $12½ million on new construction since Korea.

Employment in the industry is increasing accordingly. In 1950 21,250 persons were employed and this increased to 22,300 during 1951. Wages paid these employees amounted to $70,040,000 in 1950 and $80,034,000 in 1951.

In 1950 the industry received for storage an estimated 6,794,000 tons and in 1951, 7,498,000 tons.

A marked increase in the use of materials handling equipment was evident in all sections of the country. The industry during the last two years added approximately 100 fork trucks and 155,000 pallets to its materials handling equipment. This was in addition to replacement equipment. This and other materials handling equipment cost about $925,000.

Employees in Public Refrigerated Warehousing Industry 1948-195

	1948	1949	1950	1951
Executives and Officials	1,462	1,506	1,615	1,628
Supervisory	3,204	3,192	1,530	1,650
Clerical			2,614	2,721
Engineers (Licensed)	1,010	1,012	1,190	1,137
Engineers (Unlicensed)	1,184	1,224	1,275	1,285
Maintenance	1,308	1,336	1,360	1,539
Labor	11,160	10,618	11,666	12,340
Other	1,086	1,364		
Total	20,360	20,250	21,250	22,300

The industry paid $39,972,000 Federal, State and Local taxes compared with $25,033,000 in 1949.

On maintenance, repair and operating supplies, the industry spent $7,700,000 in 1950 and over $9,000,000 in 1951.

Taxes ran to over $32 million in 1950 and nearly $40 million in 1951.

To refrigerate the commodities stored required about 700,143,000 kw-hrs in 1950 and cost $7,351,500. 1951 figures were 752,036,000 kw-hrs and $7,520,300.

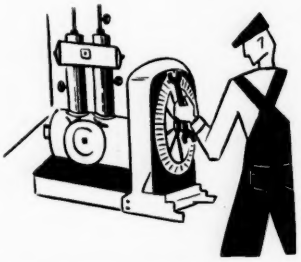
Gross income of the industry before taxes was about $157,503,000 in 1950 and $166,520,000 in 1951.

Cost increases occurred in all phases of operations, the reports showing labor costs up an average of 12.4 percent, administrative costs up 10.1 percent and other costs up 12.7 percent.

During 1950 and 1951 the industry spent a total of $925,000 on new materials handling equipment for other than replacement purposes. Materials handling equipment in use at the end of 1951—including hand trucks—had a value of $7 million.

Total Wages and Salaries in Public Refrigerated Warehousing Industry 1949-1951

1949	1950	1951
$65,387,000	$70,040,000	$80,034,000



Employees received $80,034,000 in wages during 1951 compared with $65,387,000 in 1949.

Cost of Maintenance, Repair and Operating Supplies 1948-1951

1948	—	$10,302,000
1949	—	9,894,000
1950	—	7,700,000
1951	—	9,100,000

Gross Income (Before Taxes) 1950-1951

1950	1951
$157,503,000	$166,520,000

Power Consumption and Cost 1950-1951

	Total kw-hrs Consumed	Total Cost
1950	700,143,000	$7,351,500
1951	752,036,000	7,520,300

Materials Handling Equipment in Use in Public Refrigerated Warehousing Industry 1949-1951

	1949	1951
Fork Trucks	598	700
Power Conveyors	320	370
Portable Elevators	376	400
Pallets	1,136,500	1,291,500

Taxes 1949-1951

	1949	1950	1951
Federal	$10,188,000	$14,419,000	$18,507,000
State and Local	7,785,000	8,735,000	9,593,000
Payroll	1,427,000	2,087,000	2,598,000
Withholding	5,032,000	6,583,000	8,954,000
Other	601,000	289,000	320,000
Total	$25,033,000	$32,113,000	$39,972,000

Amounts Received for Storage 1950-1951

	1950	1951
Cooler	2,079,000 tons	2,053,000 tons
Freezer	1,223,000 "	1,528,000 "
Sharp Freezer	3,492,000 "	3,917,000 "
Total	6,794,000 tons	7,498,000 tons

Maintenance, repair and operating costs in 1951 were $9,100,000 compared with $9,894,000 in 1949

Public Refrigerated Warehousing Industry Total Gross Space 1949-1952

1949	—	413,600,000 cu. ft.
1950	—	415,094,000 cu. ft.
1951	—	421,234,000 cu. ft.
1952	—	427,716,000 cu. ft.*

*Estimated

What the National Association of Refrigerated Warehousing Industry Needs

J. P. JOHNSON
President
National Association of
Refrigerated Warehouses

THE story of warehousing in the USA today is the story of an industry united for progress within the strong framework of one of the Nation's great trade associations—NARW.

Here's the inside story of how we're organized and what we are doing in NARW to promote the welfare of the individual warehouseman and the industry as a whole; the outlook for 1952—and beyond!

We have a master plan of action—a battle strategy, so to speak—which covers every contingency and keeps us marching forward in our efforts to sell the Nation on the idea that warehousing is: A sound, sensible business; a balance wheel in the Nation's economy; a business that provides a veritable backbone for America's system of distribution.

Point one in our plan of action for America's warehousemen is Washington representation. With the Nation's production line in full operation again as we mobilize for defense, being on the spot at the nerve center of the Nation's defense efforts means added opportunity for doing a better job of guarding the industry's interest. Our extensive Washington contacts include daily checks of legislative, political, economic developments and their effect on refrigerated warehousing. Telling the industry's story to the right people in government, gathering statistics to provide ammunition in fighting the industry's battles, and keeping warehousemen informed on subjects of a governmental nature keeps the Association's seven-man staff in Washington constantly on the jump.

Annual Convention

Promotion of the industry's annual convention is a second point on the master chart for guarding the industry's interests. These widely attended meetings where vital discussions of industry's problems are made possible can't be overestimated in importance. They develop trends in the thinking of the various industry members about individual and group problems. They incubate new ideas. They make possible new friendships and renew contacts. And in every respect justify the time, money and attention which goes into the planning and promotion of every first-class convention.

Every industry, warehousing included, boasts a vast store of valuable information on operating procedures, business economics, technical know-how and over-the-counter bartering of experience. But unless this treasure trove of hard-headed business facts is assembled and disseminated throughout the industry, its value lies dormant. Through the standing and special committees set up by NARW, industry leaders research industry problems. The information assembled by active committees in an active association amount to a veritable bible of industry operations.

Information

An industry as important as warehousing naturally needs to have a fund of information about itself on file for government agencies, the general public, allied industries, and other sources who for one reason or another, need to know specialized facts about the warehousing story. NARW has an up-to-date information service under the direction of capable personnel designed to handle all inquiries on an individual basis.

Having access to an increasingly greater number of current facts about the warehousing situation enables NARW to put its best foot forward in a public relations way. Needless to say, if this project were left to individual warehousemen in widely scattered parts of the country, no true picture of the scope and magnitude of the business would ever be available. However, through NARW's constant search for new and important information about the industry, a valuable fund of important business facts is always on file for the inquirer.

Any good public relations program is based on current facts, carefully sifted. Instead of the industry having to tend its public relations fences on an individual basis, NARW has an established public relations department in Washington to tell the industry's story. Helping to win friends and influence people among employees, customers, community, this Association service has proved its worth many times over in developing valuable publicity for warehousemen of America.

Public Relations

Every activity of the Association is first considered from a public relations standpoint. However, certain facts prove more readily than others just how far the Association is going in the matter of seeing to it that the public gets accurate up-to-date information about warehousing today. For instance, almost 100 daily newspapers, magazines, trade papers published in cities throughout the country are serviced with industry press releases calculated for their newsworthy effect. A bulging scrapbook in the Association's Washington office gives proof of the fact that it pays, first, to get together accurate, up-to-date information about an industry and, second, pass it along to the nation's editors in such form as will interest them and their millions of readers, the buying public of America.

NARW's Washington headquarters in the Tower Building in downtown Washington is a credit to the industry. Spacious and comfortably furnished, it offers work room or waiting room to visiting members.

Another part of NARW's plan of campaign in behalf of the warehousing industry is cultivation of allied

(Continued on page 24)

From the Executive Vice-President

WILLIAM DALTON
Executive Vice President
National Association of
Refrigerated Warehouses

A TRADE association — any trade association — needs members. Members make it an organization. But the converse is true, too. In fact never has the American businessman needed the protection and guidance of a strong trade association more than he does today. Here are some of the reasons why:

1—The trade association brings the individual member firm solutions to internal management problems, distribution problems, service problems and many others, through enlisting the aid of the best brains in the industry. An individual firm couldn't begin to afford the talent to work on a given problem represented by a single trade association committee assignment.

2—In governmental relations, trade associations deal in taxation, tariffs and trade agreements; in drafting and promoting laws helpful to industry. They may represent the industry before governmental bodies, gather statistics to support proposed legislation; they keep the industry informed of legislation and governmental action on subjects of importance to the trade.

In the important field of trade practices, they combat unfair advertising, they assist in registration and protection of trade names, and in the establishment of business standards. In the special activities field trade associations sponsor contests and awards, cooperation with other organizations, collections and credits, group insurance programs, statistical programs, and copyright and trade-mark service.

3—Trade association membership makes it possible for businessmen to meet others in their own industry. Through regularly scheduled association meetings, information concerning new techniques, new equipment, new products may be exchanged — businessmen are kept abreast of happenings in their own world.

4—Trade associations are the very core of free competitive enterprise. Businessmen should evaluate trade associations in relation to individual businesses, the industry and the public. Industry's war, the fight for survival of free enterprise, is yet to be won. In this war, trade associations play a most important part.

5—Businessmen look to their trade associations for careful analysis, unselfish leadership and intelligent advice.

6—Industry must sell itself as well as its products. Only through cooperative effort can industry as a whole be sold to the public; and only through such selling can a sound economy be assured.

The story of what NARW needs is found in what its members need. The Association's service program is geared to pants-pocket needs of individual refrigerated warehousemen. On that basis NARW has established its strong position as voice of the public refrigerated warehousing industry. On that basis it will continue to smooth the pathway of progress for individual warehouses—large and small.

Public Warehousemen Are Prepared to Meet U. S. Trade Requirements

COMMENTING on the outlook for warehousing, on the eve of the annual convention, J. Leo Cooke, general president of the American Warehousemen's Association says the industry is in a healthy condition and in good shape to take care of all current and future needs of American business. He has no reason to believe, he says, that the year of 1952 will not continue to be a satisfactory year for the refrigerated warehousing as well as the merchandise warehousing industry insofar as business is concerned.

Needless to say, he continues, the consumer has pertinent interest in physical distribution, therefore a sound public warehouse system is most important. It is essential to the over-all distribution system under which he can count in normal times on being ample to purchase what he needs and when he needs them.

Public warehousing supplements transportation in keeping the supply lines functioning. Of equal importance, it helps to keep down the cost of distribution, thus lowering the sales price of the goods which the consumer purchases.

Role in World Wars

Public warehouses, both refrigerated and merchandise, helped to win World War I and World War II. They were an essential link in the Army and Navy logistics, in the forwarding of Lend-Lease materials, in serving the great war production machine, and in keeping the people of our own country supplied with the necessities of life.

These same warehouses required no lengthy and costly reconversion to take up at once the task of again serving the storage requirements of the nation's imports, exports, and domestic producers. Modern trends of distribution have made their services increasingly important now and in the years to come. The public warehouses have not only met the challenge of peacetime commerce but are ready for any national emergency that may occur.

The majority of public warehouse operators have turned to the use of modern methods and materials handling equipment and consequently their productivity has been definitely increased which has tended to give better utilization of space along with other pertinent factors.

It can be assumed that with continuous government purchasing in order to meet our defense program and other problems, public warehouse space will be required to meet some of the government's needs.

In speaking in behalf of the members of the American Warehousemen's Association, there is no doubt that we will be prepared to meet all the requirement from a warehousing standpoint that we are called upon to perform.

The public warehouse operators have over a period of years maintained not only good public relations but exceedingly good labor relations. The complete understanding between management and labor has resulted in good productivity and efficient physical distribution.

The public warehouse operators have the "know-how" to handle large and small volumes of merchandise and are aware as to their importance in the economic life of our country, therefore they are prepared to fulfill public and government warehousing requirements that are demanded of them.

Welcome to New Orleans—

J. LEO COOKE
General President
American Warehousemen's Association

IT'S money in the bank for me." That's the way one warehouseman put it.

Yes, AWA's annual conventions are "money in the bank" for every warehouseman, because AWA convention programming is a feet-on-the-ground proposition geared to produce one result: To show you how to keep occupancy up and costs down. AWA's 61st annual convention, organized along the same lines that have produced the "pants pocket" programs of the past will convene in New Orleans next May 4-8.

As General President of AWA I take the greatest of pleasure in issuing an invitation to you to be on hand at the Roosevelt Hotel, Sunday, May 4 at 6:00 p.m. for the beginning of a convention which I feel confident will go down in history. Our Louisiana friends are counting on a record turnout and they are sparing neither money, time nor effort in making the "Sazerac Party" Sunday at 6:00 P.M. a gala occasion which no AWA'er will want to miss.

We fully expect that there will be a large attendance at this convention and all are welcome. In addition thereto, I am certain that both divisions will have a most excellent business program.

J. Leo Cooke, Jersey City, N. J.
President, AWA

J. L. Gagini, Omaha, Nebr.
Vice-president, AWA

W. A. Morse, Minneapolis, Minn.
Treasurer, AWA

The Official Staff—N.A.R.W.—A.W.A.—T.R.R.F.

The Officers A.W.A.

President: J. Leo Cooke, J. Leo Cooke Warehouse Corp., Jersey City, N. J.
Vice-president: J. L. Gagini, Omaha Cold Storage Co., Omaha, Nebr.
Treasurer: W. A. Morse, Security Warehouse Co., Minneapolis, Minn.
Secretary: Wm. Dalton, Washington, D. C.

The Officers N.A.R.W.

President: Jerry P. Johnson, Terminal Refrigerating & Warehouse Corp., Washington, D. C.
Vice-president: A. B. Efroymson, National Terminals Corp., Cleveland, Ohio
Treasurer: C. E. Simmon, Big Four Ice & Cold Storage Co., Oklahoma City, Okla.
Executive Vice-President: Wm. Dalton, Washington, D. C.
Secretary: Joseph Colquitt, Washington, D. C.

Executive Committee

G. F. Dodson, Security Warehouse & Cold Storage Co., San Jose, Calif.
A. B. Efroymson, National Terminals Corporation, Cleveland, Ohio
H. C. Emerson, Cumberland Warehouse Corp., Bridgeton, N. J.
J. L. Gagini, Omaha Cold Storage Co., Omaha, Nebr.
H. A. Gross, Booth Cold Storage Co., St. Louis, Mo.
C. B. Hart, The Seattle Ice Company, Seattle, Wash.
J. P. Johnson, Terminal Refrigerating & Whse. Corp., Washington, D.C.
W. C. Hudlow, Arrow Transfer & Storage Company, Chattanooga, Tenn.
T. E. McCrary, Memphis Cold Storage Warehouse Co., Memphis, Tenn.
F. D. Newell, Jr., The Minneapolis Cold Storage, Minneapolis, Minn.
C. E. Simmon, Big Four Ice & Cold Storage Co., Oklahoma City, Okla.
R. M. Conner, United States Cold Storage Corp., Chicago, Ill.
Wayne Wilson, Hall Street Cold Storage Warehouses, Inc., Brooklyn, N. Y.

Committee Chairmen

Insurance and Safety Committee: Gordon Janney, The Baltimore Cold Storage Co., Baltimore, Md.
Banking: Harlan J. Nissen, Terminal Refrigerating Co., Los Angeles, Calif.
Legislation: J. P. Johnson, Terminal Refrigerating & Warehousing Corp., Washington, D. C.
Public Information: Garth Shoemaker, Hygeia Refrigerating Co., Elmira, N. Y.
Cold Storage Reporting: E. E. Hesse, United States Cold Storage Corp., Chicago, Ill.
Emergency Plans: V. O. Appel, Fulton Market Cold Storage Company, Chicago, Ill.
Membership: P. G. Kuehn, Wisconsin Cold Storage Co., Milwaukee, Wis.
Transportation: M. W. Young, National Ice & Cold Storage Co., San Francisco, Calif.
Warehouse Operations: J. J. Gallery, Quincy Market Cold Storage & Warehouse Co., Watertown, Mass.

Chapter Directory

NORTH ATANTIC CHAPTER
C. B. Eddy, chairman, Merchants Cold Storage & Warehouse Co., Providence, R. I.
R. N. Tuller, secretary, Springfield Cold Storage Co., Springfield, Mass.

GREAT LAKES CHAPTER
Harry Foster, chairman, Cincinnati Terminal Warehouse, Inc., Cincinnati, Ohio
Wm. E. Ready, sec.-treas., Indiana Terminal & Refrigerating Co., Indianapolis, Ind.

SOUTHEASTERN CHAPTER
W. B. Haggerty, chairman, Tampa Cold Storage & Warehouse Corp., Tampa, Fla.
W. K. Davis, secretary, Lexington, N. C.

SOUTHWESTERN CHAPTER
C. P. Metcalf, chairman, Southwestern Ice & Cold Storage Co., Austin, Tex.
S. C. Wentworth, secretary, Scobey Fireproof Storage Co., San Antonio, Tex.

SOUTH PACIFIC CHAPTER
M. W. Young, chairman, National Ice & Cold Storage Co., San Francisco, Calif.
Jack L. Dawson, secretary, Pacific States Cold Storage Warehousemen's Assn., San Francisco, Calif.

Wm. Dalton, Washington, D. C.
Executive Vice-pres. N.A.R.W.

Jerry P. Johnson, Washington, D.C.
President, N.A.R.W.

A. B. Efroymson, Cleveland Ohio
Vice-president, N.A.R.W.

NORTH PACIFIC CHAPTER
Earl F. Swanberg, chairman, Diamond Ice & Stg. Co., Seattle, Wash.
Wm. L. Baker, secretary, The Seattle Ice Company, Seattle, Wash.

MISSOURI VALLEY CHAPTER
H. A. Steinmeyer, chairman, Booth Cold Storage Co., St. Louis, Mo.
A. F. Versen, secretary, Security Bldg., St. Louis, Mo.

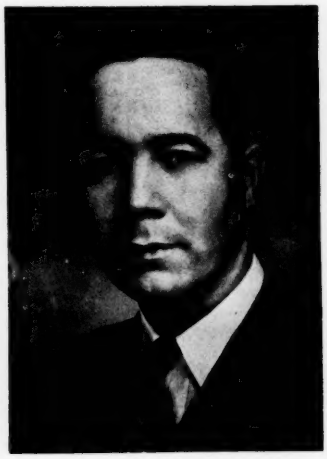
NEW JERSEY STATE ASSOCIATION
Leo J. Fisher, president, Harborside Warehouse Inc., Jersey City, N. J.
H. C. Emerson, vice-president, Cumberland Warehouse Corp., Bridgeton, N. J.
Robt. E. Baker, secretary, Camden Refrigerating & Terminals Co., Camden, N. J.

NEW YORK STATE ASSOCIATION OF REFRIGERATED WAREHOUSES
Garth A. Shoemaker, president, Hygeia Regfrigerating Co., Elmira, N. Y.

Refrigeration Research Foundation

Chairman of the Board: Dr. Samuel C. Prescott, Boston, Mass.
President: Herbert Farnsworth, Quincy Market Cold Storage & Warehouse Co., Boston, Mass.
Vice-president, William Sizer, Produce Terminal Cold Storage Co., Chicago, Ill.
Treasurer, E. G. Erickson, Central Cold Storage Co., Chicago, Ill.
Secretary: H. C. Diehl, Colorado Springs, Colo.
Executive Committee: E. M. Dodds, United States Cold Storage Corp., Chicago; G. F. Dodson, Security Warehouse & Cold Storage Co., San Jose, Calif.; J. P. Johnson, Terminal Refrigerating & Warehousing Corp., Washington, D. C.; J. F. Meagher, Merchants Terminal, Baltimore, Md.; R. C. Muckerman, City Products, St. Louis, Mo.; Arthur Otis, Merchants Refrigerating, New York.

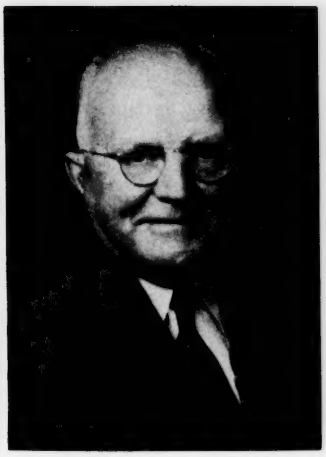
C. E. Simmon, Oklahoma City, Okla.
Treasurer, N.A.R.W.



Jos. H. Colquitt, Washington, D.C.
Secretary, N.A.R.W.

G. F. Dodson, San Jose, Calif.
Executive Committee, N.A.R.W.

H. C. Emerson, Bridgeton, N. J.
Executive Committee, N.A.R.W.



H. A. Gross, St. Louis, Mo.
Executive Committee, N.A.R.W.

C. B. Hart, Seattle, Wash.
Executive Committee, N.A.R.W.

The Convention Program—

A TIME-honored institution—the convention speaker — will be missing when the National Association of Refrigerated Warehouses convenes May 4-8 at the Hotel Roosevelt in New Orleans for its annual industry convention. The program for this year's meeting will consist entirely of panel discussions of vital problems in the management and operation of public refrigerated warehouses.

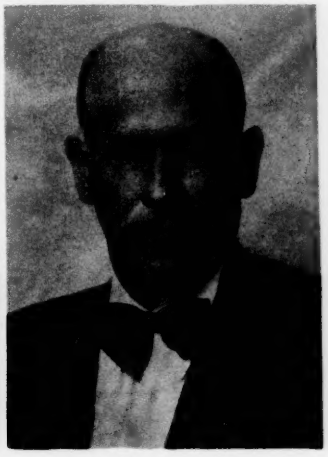
In announcing the innovation in programming, NARW President J. P. Johnson said, "The importing of a deluge of speakers for a convention program is outmoded. Today's convention delegates demand a pants pocket approach to their problems. The panel discussion gives them that approach. Through it they are able to ask, and get answers to, questions affecting their individual operations. We feel that this year's All Panel Program will give our members more for their money than they could get in any other way."

Convention Opens Monday, May 5

NARW's 1952 convention business program gets underway at 2:00 p.m., May 5 in the University Room of the Roosevelt hotel. J. P. Johnson will preside, assisted by A. B. Efroymson, vice president. Following the call to order, Mr. Johnson will submit his annual report to the delegates. AWA President, J. Leo Cooke, will extend greetings to members of NARW. NARW Executive Vice-President William Dalton will then present a special feature, "A Panorama of Progress."

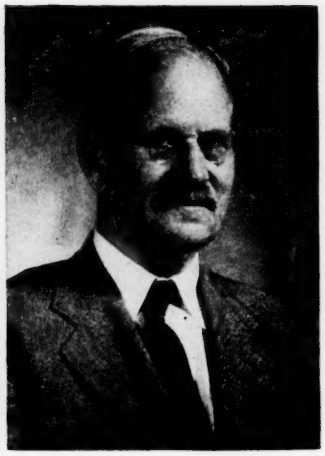
T. W. McCrary, Memphis, Tenn.
Executive Committee, N.A.R.W.

R. M. Connor, Chicago, Ill.
Executive Committee, N.A.R.W.



Wayne Wilson, Brooklyn, N. Y.
Executive Committee, N.A.R.W.

Dr. H. C. Diehl, Colorado Springs, Colo., Director, T.R.R.F.



Dr. S. C. Prescott, Boston, Mass. Chairman of the Board, T.R.R.F.

Wm. A. Sizer, Chicago, Ill. Treasurer, T.R.R.F.

The afternoon's panel discussion will be on "Prices, Pay and Priorities." Panel members will include officials of government agencies in the fields named.

A "stockholder's meeting" will follow the discussion, during which the NARW treasurer's report, and the report of the nominating committee will be read and other corporate business transacted.

Second Day

The session for Tuesday, May 6 commences with a new and appropriate film. A "Science Clinic" is then scheduled, sponsored jointly by NARW and The Refrigeration Research Foundation. Herbert Farnsworth, president of TRRF and J. P. Johnson will preside jointly. "Refrigerated Storage of Candies" and "New Commodities for Refrigerated Storage" will be discussed. "Control of Humidity and Condensation" will be the next topic. The morning's session will conclude with the report of the USDA cold storage advisory committee.

Tuesday afternoon's session will be presided over by J. P. Johnson, with NARW Treasurer C. E. Simmon assisting. A panel on "Customer Services" will be moderated by NARW Executive Committee member H. C. Emerson. Election of executive committeemen will be the final order of business for Tuesday.

Third Day

On Wednesday, May 7, J. P. Johnson will preside over the morning meeting, assisted by G. F. Dodson,

Convention Chairman

LOCAL details of the annual AWA-NARW convention are handled by Jay Weil Jr. Mr. Weil is president of Gulf Shipside Storage Corp., New Orleans.

E. G. Erickson, Chicago, Ill. Vice-president, T.R.R.F.

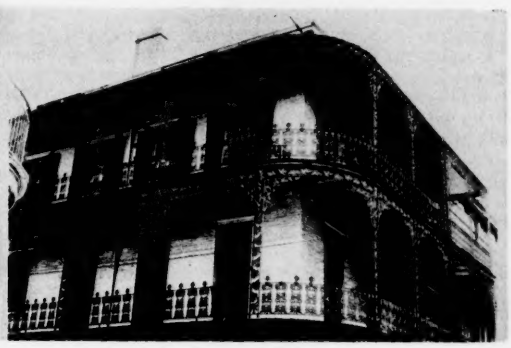
Chairman of Ladies Entertainment Committee

Mrs. Olga Moore of New Orleans will direct entertainment for the ladies at the 61st Annual Convention of the Warehousemen. Mrs. Moore is the wife of William A. Moore, secretary and general manager of the New Orleans Cold Storage & Warehouse Company, former treasurer of the National Association of Refrigerated Warehouses.

J. Weil, Jr., New Orleans, La.

Views in New Orleans Where 61st Annual AWA-NARW Convention Will Be Held May 5-8

Alluring to visitors are the plantation and antebellum homes to be found in New Orleans. There are scores of them in and near the city to serve today as reminders of the golden age in which they were built.



One of the unique characteristics identified with New Orleans' famed Vieux Carre is the quaint ironwork visible on the balconies of these French Quarter buildings. They date back to the time of the Creoles.

NARW executive committee member. "Your Banker and You" will be the first panel discussion topic of the day with H. J. Nissen acting as moderator. Panel members will be both warehousemen and bankers. A panel on "Construction and Modernization" is then scheduled with a moderator, warehousemen and engineers as panel members.

Wednesday afternoon, "Handling Materials in Multi-Story Plants" will be topic number one. Experts will participate in the panel discussion. "Lien Rights of Warehousemen," a discussion featuring special problems in that field will follow. An off-the-record "Open Forum" session will round out the program for the day. W. B. Haggerty will act as moderator and everyone will participate in the discussion.

Executive committee member, T. E. McCrary will assist J. P. Johnson as presiding officer during the morning of Thursday, May 8. "The Human Side of Warehousing" is the subject chosen for the day's first panel discussion. Frank A. Constangy, eminent labor relations attorney, will moderate. Warehousemen will act as panel members. "Insurance and Safety" is the next topic scheduled. A. G. Janney will lead the discussion.

Closing business, including the report of the resolutions committee, installation of officers, old and new business will be followed by adjournment of the convention.

General Sessions A.W.A.

General sessions of the American Warehousemen's Association, participated in by both NARW and the Merchandise Division of AWA, are set for Monday, May 5 and Thursday, May 8. AWA General President J. Leo Cooke will preside. The opening session program will include remarks of welcome by Jay Weil, Jr., general convention chairman, and the Hon. de Lesseps Morrison, mayor of New Orleans. James K. Knudson, administrator of the Defense Transport Administration, will also address the convention at that time. The closing session will be devoted to AWA business matters including the installation of new officers.

Entertainment

A sparkling program of entertainment has been arranged for what is expected to be the largest AWA convention delegation on record. New Orleans warehousemen will be hosts at a gala "Sazerac party" on Sunday evening, May 4, in the Grand Ballroom of the Roosevelt.

Immediately following the convention, AWA'men and their families will embark on a ten-day tour of Old Mexico. The tour will be personally supervised by Joseph Friday, trade association department manager of the United States travel agency.

Surprise features will be announced later.

Refrigeration Research Foundation

The annual meeting of the Refrigeration Research Foundation will follow the established pattern of scheduling meetings and holding sessions over the week-end, immediately preceding the opening of the main event. It will begin at 10:00 a.m. May 2 and will continue jointly with the N.A.R.W. through its annual meeting until final adjournment May 8.

May 2 and 3—Meetings of the scientific advisory council of the foundation at 10:00 a.m. and 2:00 p.m. each day. All warehousemen are invited to participate in these sessions.

May 4—Annual membership meeting at 2:00 p.m.; board of governors meeting at 4:00 p.m.

May 5—Executive committee breakfast meeting at 9:00 a.m.

May 6—Joint T.R.R.F. - N.A.R.W. panel discussion sessions (a) refrigerated storage of candy; (b) refrigerated storage of new products; (c) control of humidity and condensation.

Post-Convention Trip Luncheon in Mexico

AN invitation to a luncheon planned in their honor has been extended to all who take the post-convention trip to Mexico by Jaime Cavallucci, public relations officer of Almacendora, S. A., a member of A. W. A. The luncheon will be held at an Almacendora warehouse Sunday, May 11.

"We would consider it an honor," writes Mr. Cavallucci "to have as our guests all A.W.A. members who come to Mexico on the post-convention trip. We would also be glad to show them our warehouse after the luncheon." Those who expect to make the trip and would like to accept the hospitality of Almacendora S. A. are asked to advise the N.A.R.W. office.

From Committee Chairmen—A Progress Report

THE special membership services which the National Association of Refrigerated Warehouses offers to a large extent spring from work done by the association committees to meet a definite need. The following reports while not offered as a complete review of committee activities, do present some high points from these sources of accomplishment.

The Membership Committee

PHILIP G. KUEHN, Chairman

THE membership of the National Association of Refrigerated Warehouses is higher than at any time in our Association's history. As of December 31, 1951, we had a total of 472 members, including 325 regular members, 118 branch members, 17 associate members, and 12 honorary members. The year 1951 showed a net gain of 17 members which is the best showing the association has made since 1945.

The problem of soliciting new memberships is at best a difficult one because there are so many customer trade associations today actively seeking memberships from the warehouse industry that it, at times, becomes burdensome for a warehouse company to carry a number of Association memberships to keep all segments of their customer industries satisfied.

Few of us realize the tremendous importance of a never-ending membership drive in one's own trade association. Complacency leads to gradual weakness as we have seen throughout the history of the world and which this very day threatens us again. If we are ever on the alert for new members, either associate or regular, we are constantly fusing new blood with old, adding strength to our Association by virtue of numbers, and helping to spread the financial load which somehow seems to keep on increasing during these inflationary days.

The NARW Washington office has carried the major share of the load in producing new memberships. However, our very active membership committee has done a good job in producing new memberships.

The members of this year's membership committee have all performed well, but of particular note is the performance of Bill Davis of Minneapolis. He has gone all out and signed up several new members in his own territory. Next year we are going to go all out to hit the 500 member mark. We are only 28 members away, and with the continued and aggressive cooperation of both the Washington office and the membership committee, we should hit that goal without too much difficulty.

Transportation Committee To Meet at New Orleans

M W. YOUNG, Chairman

THE Transportation Committee was set up late in the year 1951 and has not had any matters of national scope presented for action. However, this Committee is to meet on Sunday, May 4, at 10 a.m. in the Roosevelt Hotel, New Orleans, to properly set up policy and operating procedures for the future. It will be the first opportunity that the members of this Committee have had to meet as a group since its formation and to outline a definite program for operating procedure in the future. From this meeting will come a report to the Convention outlining policy and the scope of operations that will be handled by the Committee in behalf of the Membership of NARW.

The Insurance and Safety Committee

A. G. JANNEY, Chairman

SAFETY in refrigerated warehouses naturally falls into two categories—engine room safety and warehouse safety. To handle these two phases of the problem two subcommittees have been named from among the full committee membership.

The sub-committee on Engine Room Safety is headed by Walter E. Bernd, of Washington, D. C. with J. C. Irwin, Kansas City, Mo., and Van Rensselaer H. Greene, New York, as members. The sub-committee on Warehouse Safety is headed by A. R. Carstensen, Sacramento, Calif., with B. L. Bertel, Fargo, N. D., and F. D. Newell, Jr., Minneapolis, Minn., as members.

A third sub-committee on Insurance is headed by A. G. Janney, Baltimore, Md., with Jack H. McGoldrick, Seattle, Wash., and R. N. Tuller, Springfield, Mass., as members.

Activity to date has concentrated on organization and comments from committee members on safety and insurance problems.

The full committee will hold its first meeting during the New Orleans Convention at which time industry safety problems will be discussed and a program of committee activities worked out.

During the convention, the committee will also conduct a panel on Insurance and Safety. This will consist of brief statements of problems by the Vice Chairmen of the three sub-committees and floor discussion.

Out of this discussion and the committee meeting a definite safety and insurance program of activities is expected to develop.

Any such program, however, must be a long-range affair and include considerable educational work.

Operations Committee Takes Action on Industry Problems

JAMES J. GALLERY, Chairman

DURING the past year the operations committee was assigned several problems for review and an expression of opinions. Many problems can only be solved by a meeting of all concerned and it is believed that at the Annual Convention this can be done.

The problem that seems to be paramount in the minds of most of the members seems to be that of the increased paper work asked of the warehousemen by their customers. The need for standard forms to supply the customers with the information they need and demand seems to be a must.

The committee revised a paper entitled "Recommended Practices in Shipping Frozen Foods" published by N.A.F.F.P. There were many objections to this paper being considered as recommended practices for the warehousemen, but with some changes it was distributed to the N.A.R.W. membership.

The committee reviewed the Statistical Questionnaire and revised it for later publication. At the present time the committee is reviewing the Proposed General Commodity Storage list for the Commodity Storage Manual.

The warehouse Operation Committee could be of great assistance to the industry, helping to solve their many problems by their collective thinking and experiences but are hampered by their means of communications.

No committee can function efficiently when the exchange of ideas must be handled by mail. It is believed that small committees in each section that could meet several times a year would be of more value to all.

Customers Approve Warehouse Services
Greetings From Allied Associations

REPRESENTING customer industries allied with the business of refrigerated warehousing, the following contributions provide a valuable reservoir of good will built up by conscientious service over a period of many years. Active cooperation with these groups constitutes a large part of the business of refrigerated warehousing and it speaks well for the industry that the contributions offer expressions of appreciation for the service rendered.

The Meat Industry Linked To Refrigerated Warehousing

RHYS JONES
American Meat Institute

WIDESPREAD use of refrigeration has enabled the meat packing industry to modify its procedures and improve the palatability of its products. Development of mechanical refrigeration has made the term "meat packer" something of a misnomer.

The term, "meat packer," was rightly used originally to describe the function of the first American meat packer, Captain John Pynchon, who, at Springfield, Mass., packed away in salt not only pork and beef but also venison and even bear meat. It was necessary to slaughter in cold weather and pack in salt brine until the meat was wanted for consumption.

That was in 1641 when Captain Pynchon consigned hogsheads of beef and pork, packed in salt, to England's colonies. A sturdy, square-rigged ship sailed from Boston Harbor with a cargo which Captain Pynchon hoped could be sold to West Indies plantation owners. This was the first instance of commercial meat packing in North America.

From this humble beginning 311 years ago when Captain Pynchon accepted molasses as payment for the meats he shipped, the meat packing industry in America has become one of the nation's colossuses, exceeded in dollar volume only by steel and automobiles. Is is now a $10,000,000,000 a year industry producing 23,000,000,000 pounds of meat annually, providing every man, woman, and child in the nation with between 145 and 140 pounds of meat annually.

No small part of this growth is attributable to the development of mechanical refrigeration. Until 1870 refrigerated transportation was virtually unknown. Live meat animals were shipped long distances from farms to slaughtering houses located not many miles from retail stores. But Gustavus F. Swift and Philip D. Armour realized the economies which could be effected by shipping dressed meat in an icebox on wheels.

Nowadays, the movement of meat from where it is grown to where it is eaten represents a gigantic industry involving hundreds of thousands of people and millions of dollars.

This growth would have been virtually impossible without the corresponding growth of refrigeration techniques. Refrigeration makes it possible to protect meat all the way from the point of production to the point of use.

The meat packing industry is grateful for the development of newer and better methods of refrigeration and closer control of temperatures, humidity and air circulation where processing is conducted. Obviously it would be impossible to maintain the original pleasing appearance and quality of the modern, mild-cured products without such controls.

The corrosion of metallic surfaces which results from the use of salt brine in refrigeration is a problem that has not been solved to the complete satisfaction of the industry.

Another trend which challenges the refrigerated warehousing industry is that toward marketing meat in wholesale and prefabricated cuts instead of in carcass form. The increased surface exposure and the nature of the surfaces require more exact refrigeration methods to avoid deterioration of product.

Increased handling necessary in the preparation of cuts also presents challenging refrigeration problems. Sliced bacon packaging rooms offer an interesting example because temperatures and humidities here have to be closely controlled and in a manner to insure extreme sanitation.

Marketing of high speed compressors requiring much less floor space has enabled packers to increase their refrigeration capacity without an accompanying increase in the size of their compressor rooms. Development of new types of insulation material has been followed with intense interest by the meat packing industry in the hope that insulation might be found which would be economical and completely resistant to moisture penetration, fire and rodent proof and rigid.

Warehousing Industry Provides Quality Butter

RUSSELL FIFER, Exec.-Secy.
American Butter Institute

WE EXTEND hearty birthday greetings to the National Association of Refrigerated Warehouses, the American Warehousemen's Association and the Refrigeration Research Foundation. Your industry is an indispensable link in the processing and distribution of butter.

Since the production of creamery butter was inaugurated about 104 years ago, butter has continually served as the "balance-wheel" of the dairy industry. The consumption of fluid milk and cream is almost uniform throughout the year, but the dairy cow produces a considerably greater portion of her annual milk supply in the months of May, June and July. This extra milk is mainly manufactured into butter and can be stored in your refrigerated warehouses for use during the winter period when the production is decreased.

Butter, with its high content of butterfat, its relatively high value per unit weight, and the fact that it can be stored safely for a considerable period of time, makes possible this function as the "balance-wheel."

Without the excellent services of the refrigerated warehousing industry throughout the United States, the butter industry would not be able to provide a uniform and high quality product to the consumers in 48 states. We commend you on your high caliber of service and function.

Refrigeration Research Aids Control of Candy Quality

PHILIP P. GOTT, President
National Confectioners Association

THE refrigerated warehousing industry has made a great contribution to the development of the food industry in the United States. It is playing an essential role in the drama of modern food distribution. It will continue to serve in innumerable ways to protect our health, our foods and our raw materials.

During the past few years, the confectionery industry has rapidly learned the value of refrigeration in the many phases of its operations. Whether the candy item is chocolate coated or plain, filled hard candy or solid. caramel or brittle, marshmallow or fudge, jellies or lozenges—whether it is packaged in box, bulk, bar or bag —refrigeration is a vital factor. From the storage of the raw materials until the consumer's first bite, this modern method of control aids in protecting the quality of the product.

Industry interest in securing practical information on the methods of proper temperature control for candy storage is proven by the keen attention given to the results of the research work at the Georgia Experiment Station. At this Station, studies on the effects of temperature and humidity control of representative types of confections and shelled and unshelled varieties of peanuts and tree nuts, have been sponsored for the past three years by the Refrigeration Research Foundation, the National Confectioners' Association and the Georgia Experiment Station. Several reports on this work have been published in trade journals in your industry and in the food industry.

At present, additional studies are in progress at the Station which have added packaging as an important factor in establishing proper conditions of temperature and humidity. Over thirty kinds of candies containing various ingredients are being stored in 1) the original containers, 2) the original containers overwrapped with wax paper, and 3) the original containers overwrapped with aluminum foil. These are subjected to various temperature and humidities for specified time periods.

We can only visualize the tremendous value of such information to the confectionery industry. Because of the great variety of our products, our problem is one that requires extensive research. It is hoped that through the continuation of the fine cooperation between your industry and ours that we shall be able to bring even more delicious confectionery products to consumers living in all climates in all parts of the world.

Refrigeration Stabilizes Marketing of Shell Eggs

CLIFF CARPENTER, President
Institute of American Poultry Industries

EACH spring farms in the United States produce nearly one billion shell eggs which are not consumed until late summer and fall. Another 3½ billion — used for cakes, candy, mayonnaise, noodles and other food products — are broken out and frozen for use the year 'round. These are surplus eggs laid from March to mid-June—the heaviest production period.

These marketing processes, developed over many years' experience, would not be possible without modern refrigeration, both fixed and mobile. And the large volume of eggs that must be stored to protect freshness requires vast storage facilities which provide the most efficient temperatures and humidities.

Without these services, provided by commercial refrigerated warehouses, producers would not have as good a market for their eggs during the heaviest production season; nor would consumers be able to buy eggs as economically during periods of lighter production. This service helps level out supplies, enabling consumers to buy eggs at a more stable price the year 'round. A simple story known to nearly everyone . . . but it contains the essence of the relationships between the egg and poultry industries and the refrigerated warehousing industry.

Modern refrigeration is also indispensable for processed chickens, turkeys, ducks, geese and other poultry products. It provides the protection these perishable foods must have, and at the same time it helps maintain a balance between supply and demand.

Thus refrigeration is an indispensable part of poultry and egg marketing and distribution. While improvements can and will be made—the poultry and egg industry expresses its appreciation to the refrigerated warehousing industry for its past, present and future service.

Dairy and Poultry Industry Admires "Big Brother"

RENE S. GORANSON
Pacific Dairy and Poultry Association

LIKE a middle sized boy looking up at his big brother . . . that's the way our industry is looking up to the refrigerated warehouse industry. Not that we are so little either, or that you are so big, but we are rather young in many respects.

We got out of the seasonal poultry packing age several years ago and grew up into our knee pants regional poultry production of today. Our dairy industry has left the cradle of legislative protection and is now in the knee pants stage of growing on its own merits—and it has lots of that, too. The knee pants are a little tight in spots at the moment. We need more room to grow poultry, more room for dairy farming, room for processing, and more room to finance our industry. But then the short pants cannot be changed because we still have too much room for merchandising . . . room to spare . . . and as long as that prevails we will be in short pants.

Short pants aren't shameful. All industries go through that stage. The warehouse industry did many years ago. The pants problem that should worry any industry is getting caught with them down. We are trying not to.

We are cognizant that merchandising encompasses many phases of our industry, not just the selling. We have to rely on much advice from al- 2—IR—M8Paul 8 on 10 ....jy(ffl.... .. lied industries—hatchery, feed, supplies, and refrigerated. That is where the refrigerated warehouse industry shines. You possess a most worthwhile research foundation, capably administered, whose work has been most helpful in contributing to the growth of our industry. You maintain a fine public relations program, both individually and collectively. As a result, your position and prestige with your community and the nation stands in high regard. You have gained from your efforts and so have we as coworkers.

We look upon you with mixed feelings at times, big brother; with awe at your accomplishment and with a mercenary thought at our individual

associations. We like to get what we are paying for, and we usually do. But when little brother leaves his 10 cent top with big brother, he becomes unhappy when big brother loses it and gives him only a nickel to buy a new one. Here again we need a little indoctrination, too, from our big brother. We should be shown how better to prepare our tops for your keeping, how to mark and tag them so you won't get them confused with other tops, and how we should learn not to tell you that it is worth a dime when we really paid only 8 cents for it at Woolworth.

We are looking forward to lots of top spinning with you, big brother. Your industry has not let us down so far.

Frozen Food Packers Commend Improved Service

LAWRENCE S. MARTIN, Secretary
National Association Frozen
Food Packers,

ON THE eve of the N.A.R.W. Convention, it is a pleasure to greet the refrigerated warehousing industry and extend our sincere wishes for successful meetings.

Our wishes for your success are not entirely altruistic. For frozen food packers well understand the advantage to their industry that comes from improved methods and increased efficiency in the warehousing industry. It would be difficult to think of two industries as closely allied as the frozen food packing industry and the refrigerated warehousing industry. They have much in common.

As the frozen food industry has grown and prospered, good fortune also has come to warehousemen. So has it been and so will it be. The frozen food industry last year gave more business to the warehousing industry than ever before, and the probability is that the 1952 total will be even greater.

While it's pleasant to reflect on past successes, our eyes should not be dimmed to our continuing problems. And what are these problems? Basically, they all go back to two objectives of the frozen food industry. First, to improve the protection and handling of frozen foods from producer to consumer and, second, to reduce all costs involved in producing and distributing frozen foods. Frozen food packers are determined that the fine quality of their products will not be sacrificed because of improper or careless handling before the food reaches Mrs. Homemaker. Progress has been made, but continuing efforts are necessary to eliminate harmful and questionable practices.

Frozen food packers also are focusing attention on all possibilities of reducing costs — and this includes costs of warehousing. Every possible saving at each stage of production and distribution helps improve the competitive position of frozen foods. Very significant gains have been made, but the industry cannot rest on its laurels. For what has been won can also be lost.

But these gains will *not* be lost, and the future is indeed bright, if all who have a stake in the frozen food industry will work diligently together. And that is why frozen food packers look to the warehousing industry for continued close cooperation and sympathetic understanding in seeking solutions to what are really mutual problems.

The Achievements and Progress of The Refrigeration Research Foundation

AT THE Annual Meeting of The Refrigeration Research Foundation in New Orleans, beginning Friday, May 2, Director H. C. "Dutch" Diehl has planned to stress achievement as the central theme. The theme directs attention not only to the Foundation and its work but also to progress of refrigerated storage and of refrigeration in general.

In Mr. Diehl's view, refrigerated storage is in the beginning of a new broad cycle. Since its early development, well over 50 or 60 years ago, it has been moving out of the category of things that we "unfortunately must have" into the category of technologies that open new vistas for processing, manufacturing, and general industrial development. In fact, we are actually well along in the new cycle, he points out, because refrigeration has essentially created a number of new products, such as frozen juice concentrates. But we are not yet fully aware that refrigeration has enormous capabilities not only in the field of foods but in chemical manufacture and other areas.

As the refrigeration industries grow and adopt numerous improvements, such as those evident in refrigerated storage, emphasis falls increasingly on *usefulness* of refrigeration and less on its circumvention.

Interest in Research

Another trend that Mr. Diehl calls attention to is the increased interest on the part of industries in research. Nowadays industrial groups are urgently bringing their research problems to the attention of scientific agencies, both public and private. They are realizing more and more that their progress and their success are to a considerable extent measured by the soundness and adequacy of their research programs.

On the other side of this subject, scientists and research agencies are zealous in their desire to contribute to industrial progress. The Foundation leadership is developing constantly closer relationships with research workers. Unquestionably this expanding interest in research is partially due to our growing awareness that progress is important to military strength. If our armed strength seems to falter in any respect, we immediately look to our research for the cause and the remedy. The public is becoming increasingly aware of the importance of research, soundly and religiously guided, to its welfare.

Program Will Survey Progress

The Foundation's Annual Meeting will make use of the week end just prior to the meeting of the National Association of Refrigerated Warehouses. On Friday and Saturday, May 2 and 3, the Scientific Advisory Council will hold sessions, concerned with scientific problems and progress, and all warehousemen are earnestly invited to attend these meetings. On Sunday, May 4, the membership meets, and also the Board of Governors. The Executive Committee meets Monday, May 5, at breakfast, and from then on the discussions of tech-

nical problems of refrigerated warehousing will be jointly sponsored throughout the week by the NARW and TRRF.

A major feature of the technical program will be the panel discussions on Tuesday, May 6, on storage of candy and new products and control of humidity and condensation. As is usual at these meetings, there will be many of the Scientific Advisory Council and project leaders around for many conferences and consultation on matters of technical importance.

The printed Annual Report of the Foundation, which will be available at the meeting, will survey progress. Among achievements are the following:

Current Achievements

The studies on fresh Florida Valencia oranges which the Foundation has been aiding in collaboration with the citrus industry have provided new information on technical requirements for successful storage during summer months. The work is conducted by the Bureau of Plant Industry, Soils, and Agricultural Engineering of the U. S. Department of Agriculture, partly in commercial refrigerated warehouses. The outlook for orange storage is good but at present summer storage for grapefruit looks less promising.

Studies at the Georgia Agricultural Experiment Station on candies, aided cooperatively by the National Confectioners Association, have shown possibilities for extension of storage life many times that possible at room temperature. Other studies there have shown the kinds and degrees of benefit to be expected from low temperature storage of peanuts and pecans for use in candies.

In the studies on shrimp at Louisiana State University, the cause and prevention of black spot continue to come into the realm of things understood. This progress is particularly important because shrimp fisheries are undergoing extension in several areas. In collaboration with National Fisheries Institute, the Foundation helped stage a breaded shrimp clinic —similar to fruit and vegetable "cuttings"—which has helped packers in their efforts to develop this new frozen food product.

Another fisheries project is the one on crab meat, which is making progress at University of Maryland, jointly conducted by U. S. Fish and Wildlife Service. This project has focused on chemical aspects of texture.

At Purdue University an aided project is helping expand frontiers of knowledge on the basic chemical nature of the volatiles in apple storages, and the project also includes some practical tests on air purification. At Oregon State College workers have come up with some new facts on efficacy of various germicidal solutions and packages in the preservation of fresh packaged produce under refrigeration. Studies at Ohio State University have added new knowledge on usefulness of pasteurized frozen eggs.

At the University of Wisconsin fundamental data on cheese mites are coming from life-history and control studies. Some studies at Kansas State College on precooked beef and pork dishes have reached a conclusion, and it is evident that the field of precooking is one that may mean much to the frozen-food industry as growth continues.

Studies at Columbia University on the electrical-analogy technique for the plotting of heat transfer in walls of complex structure have been expanded to include heat exchange in fluid-to-fluid exchangers. At Northwestern University the studies on measurement of relative humidity at subfreezing temperatures are continuing.

At the Western Regional Research Laboratory of the USDA, which Director Diehl serves as consultant on frozen foods, the Foundation is providing assistance for studies on temperature tolerance of frozen fruits and vegetables and for studies on quality factors in frozen turkeys.

Future Looks Bright

During the past year the Foundation has provided aid for a new project on storage of Bermuda onions in Texas. The Texas Experiment Station, U. S. Bureau of Plant Industry, Soils, and Agricultural Engineering, and two commercial refrigerated warehouses are cooperating on this study. Another new project is concerned with storage of cranberries and the Experiment Station of Massachusetts in conducting the study.

The Foundation collaborates with a number of State Experiment Stations and private research institutions on an informal basis in short-term studies, through allocation of funds for use when needed. During the year arrangements for short-term studies were made with two additional institutions: Illinois Agricultural Experiment Station and Louisiana State University.

An important factor in the general outlook is the increasing extent of cooperation of the Foundation (representing refrigerated warehousing) with industrial groups and their organizations that represent customers of the warehouses. The list is long, including dairy, poultry, fruit, vegetable, and other commodity industries. Some of the industrial groups have been mentioned specifically but there are also others, and all have shown a keen interest in conducting conferences and pursuing studies jointly with the Foundation.

Exploratory Studies

A number of exploratory studies are under way, including one on refrigerated storage of automobile batteries to retain electrical charge. Explorations have been made or are under way on coffees, spices, cocoa powder and other commodities, and the Foundation is delving into the problem of condensation on packages. Especially noteworthy and valuable is the increasing participation of the Foundation membership in the suggestion of new studies and in providing facilities for storage phases of projects.

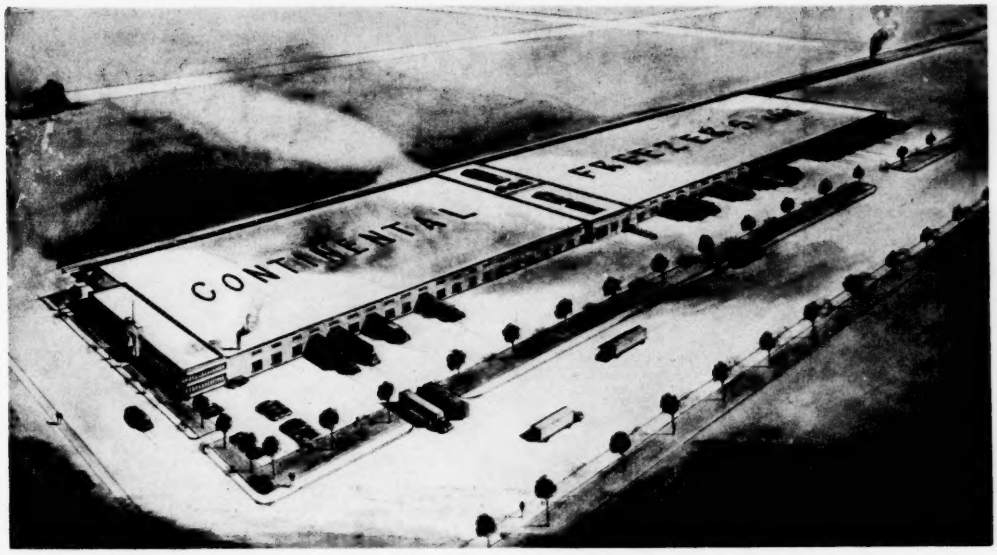
One of the major undertakings of the Director and the office staff of the Foundation is the review of new technical information on refrigerated storage and its classification and indexing. Along with this work they prepare a monthly bulletin which includes summaries on storage of specific commodities. The accumulated summaries are undergoing revision and inclusion in a large loose-leaf Commodity Storage Manual, which of course is available only to members of the Foundation.

What the Association Needs

(Continued from page 13)

industries. Among trade association executives representing various allied business are to be found some of the finest minds in the American business picture. "Picking the brains" of these outstanding trade association executives is part of the general round of activity carried on by the Washington office. It's done through NARW membership in such organizations as the American Trade Asso-Association Executives, Public Relations Society of America, The Food Group, and many other groups related to the warehousing and distribution of merchandise of all types. In terms of general business worth this good neighborliness which NARW practices makes more and more friends for warehousemen everywhere.

This year—and every year—refrigerated warehousemen are united for progress through NARW. It is the respected voice of the industry in business counsels here and abroad.



Artist's sketch of new warehouse of Continental Freezers of Illinois, Inc.

New Freezer Storage Incorporates Latest Design Features

Single floor modern warehouse for frozen foods has modern layout for rapid and efficient handling of goods, completely palletized. Many new ideas in design and equipment.

AN OUTSTANDING example of modern refrigerated warehouse construction and layout is now in operation in the new Crawford Division of the Central Manufacturing District on the southwest side of Chicago at 4220 South Kildare Avenue. This new plant, owned and operated by Continental Freezers of Illinois, Inc., occupies a tract of eight and a half acres. It is housed in a reinforced concrete building, with brick enclosing walls, 990 feet long and 190 feet wide. Starting construction in June, the plant was put in operation, using approximately half the storage space in November. It was fully completed in April of this year.

Planned for efficient and rapid movement of storage commodities, the new plant of Continental Freezers of Illinois, Inc. occupying a building 990 x 190 feet at 4220 South Kildare Avenue, Chicago is now open. All storage and handling operations are conducted on one floor, completely palletized and arranged for the utmost efficiency in the handling of storage commodities. Construction was started in June, 1951. In November the plant started operating with more than half of the storage space in service, and in April of this year, it was fully completed.

Paved Area for Trucks

Along one side is a paved area for trucks, 90 ft. wide, extending the length of the 950 ft. long truck dock. On the other side there is a rail siding, also 950 ft. long. Each dock is completely enclosed.

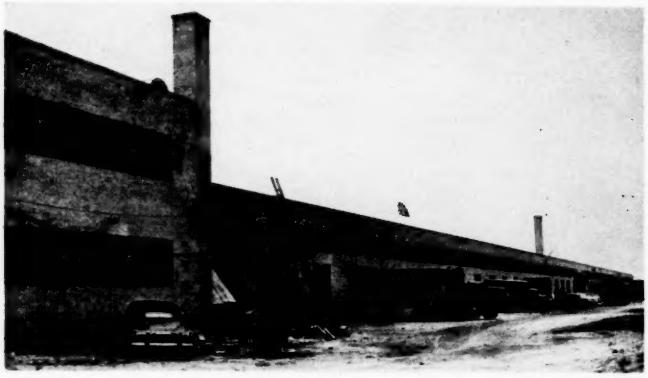
Opening from the platforms on each side are pull up doors for access to and from trucks or railway cars. There are 39 doors on the truck platform and 19 on the railroad dock. Pull up doors were made by the McKee Door Company of Chicago. Access from either dock to the storage rooms is through combination air lock vestibules. The air lock and freezer doors were made by the Jamison Door Company.

The Chicago River and Indiana Railroad provides rapid rail service to and from the warehouse.

The entire plant operations are carried on one floor or dock level. This modern plant features the newest methods for rapid and efficient handling and storage of packaged commodities.

Freezer Storage Rooms

There are four large freezer rooms, providing a total storage space of 2,756,000 cubic feet. Two of these, 100 x 150 feet, are held at minus 20 F and two, 150 x 340 feet, at minus 10 F. All these rooms are equipped with



Paved area for trucks on north side of plant. This is 90 feet wide, extending the length of the building.

vestibule-type entrances with air locks between. Thermocouples throughout are connected to a Brown Instrument Co. central indicating instrument in the engine room. This instrument, together with pressure gauges, mercury switches and indicator lights, all mounted on a stainless steel panel, gives complete operating information to the engineer while making it unnecessary for him to leave his post in the engine room.

Refrigeration

Refrigeration is supplied in all freezer rooms by blower type units with duct air distribution. The units are so-called floor type units made by Niagara Blower Co., suspended just below the ceiling to conserve floor space. Water defrosting is used and a 7½ hp pump in the engine room supplies pressure during low pressure periods on the city water supply. To avoid trouble with freezing of globe valves, lubricated, plug-type cocks let water into the unit supply pipes.

In each of the two minus 20 F freezing rooms, there are four blower-type refrigerating units, operating separately or together. The two large minus 10 F freezer rooms have six refrigeration units in each. The units have generous surface to operate on a small air-to-refrigerant split with high relative humidity.

Flash and inter coolers are used with the boosters. Liquid ammonia pumps for recirculation of the liquid refrigerant through the coils of the cooling units are connected to two 44 in. diameter surge drums or accumulators.

On the roof is a 400 ton Niagara evaporative condenser of special design handling 80,000 cfm by means of only two 15 hp propeller fans.

The whole operation of the condenser is under automatic control from head pressure. When the outside temperature drops to about 15 F, no water circulates. A 7½ hp condenser water pump is located in the engine room for freezing protection.

Palletized Operation

The plant is a completely palletized operation, using eleven Lewis-Shepard Spacemaster "61" electric counter balanced fork trucks. Amplifying these trucks are 24 rubber tired trailers with automatic hitches, also of Lewis-Shepard make. These trucks will carry loaded pallets or crates piled two-high and are used for hauling from truck or rail platform into storage room. When stacking, the usual procedure is to place two crates or pallets at a time in the stack. This operation is illustrated in the cover picture of this issue.

The 21 foot high ceilings allow for six-high tiers. The fork trucks also pick up the palletized goods on the platform, pass through the air locks and stack goods in the storage room up to 18 feet high. The average clear ceiling height throughout the plant is 21 feet.

The crates are a special design and manufacture for this operation. They come knocked down and when assembled are approximately 3 x 4 feet by 27½ inches high. The crate design permits a ¾" overlap around the top of the pallet thus preventing sliding while being handled.

An added feature in this plant is an arrangement of steel shelving along cross-over aisles for temporary placing of partial pallet loads.

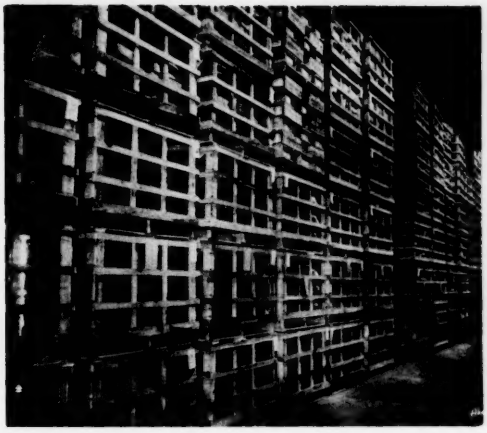
Machine-Room

The machine room is located in the middle of the building, with low temperature freezing rooms on each side to keep the length of refrigerated mains to a minimum. It is built on grade level. It is 75 x 70 feet, with a ceiling height of 24 ft. 6 in. In this room is installed primary equipment of three FES Fuller rotary booster compressors driven by 100 hp normal torque Ideal motors and second stage machines, consisting of four 100 hp Baker 10½ x 10½ VSA compressors furnished by The Burge Ice Machine Company. Total connected hp of the entire plant is approximately 1,000 hp. The room is finished in an attractive light color.

The floors of the entire plant, with the exception of the machine room and docks, have been erected four feet above grade, resting on pillars, providing a ventilated space underneath. The sub-floor is of 6 inch re-

The platform on truck loading side. There are 39 pull-up doors for trucks, as shown at extreme left.

A trainload of pallets being transported on fork lift truck and trailers.



These specially designed crates are piled six-high in one of the freezer rooms.

inforced concrete. Floor insulation is provided by a 12-inch thickness of Permalite concrete, with a 3-inch concrete working floor on top.

The freezer room walls, on the platform sides, have a concrete block wainscoting running up six feet from the platform level. Against this is a 6 inch thickness of corkboard. From this there is a 6 inch cork self-supporting wall to the ceiling. A waterproof membrane has been applied on the outside surface of the cork, finished with a cement plaster coat. Supporting the cork walls on the inside are 4 x 4 inch wood studs on 7 foot centers.

The ceiling construction consists of 4 in. thick corkboard laid in the forms. Above this is a 10 in. reinforced concrete roof slab. Additional insulation is provided by a 9 in. thickness of Permalite concrete. Topping this is a built-up roof made of pitch, felt and gravel. The roof is supported on concrete columns with 30 x 33 ft. spacing. There are no beams, leaving the ceiling smooth. The United Cork Co. furnished the cork insulation.

The Permalite insulating concrete used to insulate the floors and roof is composed of Permalite insulating aggregate and Portland cement. It is a light weight material, weighing only 25 pounds per cubic foot. It is featured as fireproof, ratproof, moisture proof and odorless. It was supplied by American Bildrock Co., Chicago.

Near the center of the building, facing on the truck platform side is an office for the warehouse superintendent and a service room for truck drivers. Adjacent to this is the materials handling equipment room. The second floor of this area is occupied by storage, locker and shower rooms.

The entire plant, including the railroad siding, both loading docks and the paved area, will be fenced in with a 7 ft. industrial fence made by the Cyclone Fence Division of the American Steel & Wire Company.

Easy access to the plant is provided for trucks which enter through a center gate. In the center of the building, opposite the gate, is an elevated traffic control tower overlooking both the trucking area and the loading platform, from which trucks are directed to the proper loading door. Exit gates are at both ends of the area.

Inter-Com System For Trucks

For directing the trucks there is an intercommunications system, made by Tri-Par Radio Co., with Jensen speakers. This inter-communications system also extends throughout the plant, including the offices, the platforms, storage and other rooms, making it easy to contact workers and office personnel. A pneumatic tube system similarly connected, expedites the transmitting of orders or written instructions.

Space for the main company office is in a two-story section 40 x 123 feet, at the east end of the building. About 25 per cent of this space will be used by the company, the other space to be rented. Jutting off from one corner is a section converted into a small apartment, with a kitchenette and space for a living room. This will be used for entertaining guests and for temporary living quarters for the executive personnel. All of the offices are fully air conditioned and they were designed throughout with modern architectural treatment. Sound-proof ceilings were installed, made of Permalite. Air conditioning equipment was supplied by Burge Ice Machine Company. Heating for the offices and the engine room is supplied by two small Pacific heating boilers with Todd oil burners.

With exterior walls of buff face brick and a number of modern architectural features, the building presents an attractive appearance. The architects and engineers were A. Epstein & Sons, Inc., Chicago. The refrigerating system was designed and installed by the Burge Ice Machine Co., Chicago, represented by Don Parkhurst as adviser on refrigeration.

The management of Continental Freezers is under the direction of Kenneth F. Stepleton, president and Thomas L. Gould, treasurer. Mr. Stepleton for the past twenty years has devoted his entire time to management of public cold storage facilities. The past two years he has also been president of Continental Freezers, Inc., Lafayette, Indiana.

Mr. Gould for the past thirteen years has been head of Lafayette Foods, Inc., at Lafayette, Indiana, which is engaged in the sharp freezing of meats and sale and distribution of frozen meats, meat products, poultry, fish, fruits and vegetables throughout the middle west. He is also associated with Continental Freezers, Inc., Lafayette, Indiana, and is chairman of the board of that company.

Other officials are Omar S. Johnson, general manager, formerly superintendent of G. H. Hammond Co., Lester E. Thornton, assistant general manager, Oscar Krueger, plant superintendent, Joseph Farrell, chief engineer, and E. Closson, traffic manager.

HIGH CEILINGS AND HIGH PILES

A valuable feature of one-level warehouse operation is the advantage of high piling, but there are other factors which may contribute to the efficiency of moving goods.

D. O. HAYNES
Consulting Industrial Engineer

The use of fork trucks in refrigerated warehouses has encouraged high piling of goods. Most of the new structures are one story design and in many of these the goods may be piled up to a height of 18 ft. Mr. Haynes analyzes the problems involved to determine practical piling height for different types of goods. The weight per square foot on the bottom layer packages is calculated. Different piling procedures are evaluated and practical recommendations for design and operation are given.

AIR RIGHTS" is a term which has been glibly tossed about ever since multiple tiering of unit loads was made possible through the introduction of the pallet-fork-truck method of handling. Because of certain generally recognized difficulties inherent in the physical characteristics of cold storage plants, concerns in this field were not able to adopt this new technique as early as industry generally. However, now that the economies possible with unit-load handling have been demonstrated and refrigerated houses throughout the country have palletized their operations many executives in the industry, in planning new facilities, are thinking in terms of one-story structures.

From what these men say one would think that the primary advantage to be gained from working on one level is high piling. This is, of course, a valuable feature, but there are other factors, such as the elimination of elevator "bottle-necks", more intensified supervision and the approximation of straight-line flow from receiving, through storage and out to shipping which also contribute to the efficiency of working on a single level.

One Story Tiering

There are those who think that tiering in a one-story plant is limited only by the height to which present-day equipment can lift unit loads. Common sense tells that "the sky" is not "the limit", but just where should the line be drawn? With so many plans in the making for the expansion of the refrigerated warehousing industry it is an appropriate time to discuss the various factors involved in tiering commodities in such plants in order to bring the whole question of pile heights into proper focus.

In starting an investigation of this kind, we must recognize that two fundamentally different ways of piling cold storage products are involved. Unit loads can be so tiered that the weight of the upper units is not transmitted to the products in the lower tiers. We shall call this the supported-load method. The other practice is, of course, to pile successive loads directly on those below. This might be called the unsupported-load method. It is quite apparent that these two methods present distinctly different problems. We shall discuss them separately, starting with the simpler, the supported-load method.

Supported Load

Most of the multi-storied refrigerated warehouses which are palletized have adopted a pallet approximately 36 x 40 inches. On this carrier a unit load about 48 inches high (54 inches including the pallet) represents the usual height of a load approximateing 2000 pounds. There are no products which are usually offered for storage, including the trouble-making dried fruits, which cannot support their own weight quite satisfactorily when piled to this very limited height. This means that if a practical means can be found to support upper tiers made up of the kind of unit loads just described there is, to all intents and purposes, no limit to which they can be safely piled. Let us look at some of the possibilities.

The first means at our disposal is to use a pallet equipped with vertical members to act as supports for another load placed on top of the one below. Box or frame pallets of various designs are offered by a score of pallet manufacturers for this purpose. Supports made of pipe and pipe-fittings which are fastened to the outer edges of the pallets are also available as supports for upper loads.

Although there is no doubt about the adequacy of these devices to accomplish the purpose for which they are intended their use adds considerably to the investment needed for a palletization program and, unless they are collapsible, they take up much space when not in service.

But perhaps their greatest drawback is the loss of available piling space on the pallet itself due to the intrusion of the support members on the pallet surface. They also offer difficulties during the time the unit load is being assembled on the pallet because the men have to work around them in awkward positions.

Vertical Dunnage

The Navy Department has done a vast amount of research on methods for piling crushable merchandise—a problem similar to the one we are discussing here—and they recommend the use of "vertical dunnage" for this purpose. The procedure calls for comparatively thin boards to be inserted within the load or around the edges, cut slightly shorter than the heighth of the pile, so that as pressure is exerted from above it will be taken on the dunnage instead of being transmitted to the product being stored.

The difficulty here is to have the right length of dunnage available when it is needed—a very serious obstacle in cold storage where receipts are unpredicable as to time and kind. There is also an operational disadvantage because if the dunnage is placed within the load, we are precluded from using cross-tied patterns, a very desirable feature from the standpoint of stability.

Shelves or racks offer a second possibility with the added advantage of leaving the load and its pallet intact, but, because of the disproportionate amount of aisle space re-

quired their use in refrigerated plants, where space always seems to be at premium, is not practical. The reason for this is that, unless the shelves are equipped with rollers, the only way to set up shelving is to place two pallets back to back and an aisle on either side to permit loading.

This arrangement can be justified in a distribution center, such as a wholesale grocer. Here the merchandise on the lower tier is used as a "pick line" in assembling orders, while the pallet on the upper tier is in reserve, ready to replace the lower one when all the merchandise has been distributed from the latter. This discussion would not have been complete if mention had not been made of this method, but it can be disposed of by saying it is not practical in this fiield.

Mezzanines

Some recently erected one-story plants are provided with mezzanine floors—a third possibility for the solution of our problem. In some instances such a structure is run around the outside edges of the main storage area; in others, an elevated platform is spread over the central facility. In the last analysis either of these layouts create a sort of two-storied building in which the elevator function is taken over by fork trucks which lift the unit loads from the main floor to the mezzanine, where other equipment takes over.

A qualified architect would have to pass on the structural economies effected by such an arrangement. We shall confine our attention here to the operational aspects involved in handling unit loads under these conditions. It does't require detailed time-studies to bring out the point that there are a number of extra moves in the handling cycle when one fork truck lifts a unit load to an upper elevation, drops it and then another machine picks it up and places it in storage.

One Operation Fork Truck

This is compared with the simpler way where the original fork truck, when it has elevated its load, places it in the spot where it is to remain during the storage period. Furthermore, a detailed consideration of the two plans would mean a study of the additional investment needed for equipment, the time spent by operators in going to and from the upper operating level, etc.

Another point which should be mentioned here is the fact that one of the most advantageous features of one-story construction is lost when superstructures are erected over the storage area. The elimination of supporting columns or, when they are needed, the wide centers on which they can be placed in single-story plants is very helpful from the standpoint of mechanized handling and when the storage area must be cluttered up with these objectional features there is a throw-back to the problems involved in multi-story buildings.

Sufficient has been said about the methods discussed so far to indicate that they are, in reality, make-shift arrangements which side-step the real issue. If the revolutionary conception introduced by the pallet-fork-truck method of handling—the ability to tier one unit load on top of another—is sound and has all the merits which are claimed for it, why not go all out for high piling of unsupported loads? Why not indeed! It now becomes a matter of determining how high it is practical to store the products which find their way into cold storage during the course of their trip from their origin to the consumer.

Unsupported Loads

When we approach the problem from this standpoint we must take into account certain elements and we shall channel our thinking on the following:

1—The size of the pallet.
2—The storage environment
3—The container.
4—The product.

It is perfectly safe to say that the bigger the pallet area the higher the unit loads assembled on it can be tiered. A case in point is a sugar refinery. It was found that when a pallet 42 x 48 inches was used the maximum tier was three pallets, but when the same product was stored on a 64 x 64 inch pallet that it was practical to pile five-high. But what about cold storage operations?

There is one very limiting dimension if unit loads are to be created in the carrier and that is to width of a reefer door. If the packages in a car are moved out of the car and then palletized, it means double handling. Conveyors have been considered but no practical method has as yet been developed to use them for all the kinds of containers met in cold storage handling. Unless either of these methods is used the only practical handling solution is to palletize in the carrier and this means that one dimension of the pallet must be not greater than 45 inches in order to pass through the reefer door. The standard dimensions for these cars indicate that their doors are 48 inches wide, but, as all of us know, they are actually about 46 inches "in the clear" when we consider the gaskets which run along the edges. The predominance of the package measuring approximately 12 x 24 inches (egg crates, citrus, apples, etc.) leads one to believe that it will be some time before this industry will use a pallet which varies too much from 36 or 40 x 48 inches. Of course, there might be an exceptional warehouse which receives and ships commodities only by trucks and such a one would not have this limitation to meet. But even this house might have to look forward to the day when unit loads will be taken in and shipped out as such—in which case truck dimensions will be a controlling factor. It is indicative that the Navy, after several years of operation with a 48 x 48 inch pallet has now standardized on a 4-way 40 x 48 inch unit-load carrier.

The storage environment must also be considered in our thinking. The reason? The characteristics of the products and the containers in which they are stored are quite different in coolers than in freezers. Further, the higher humidity usually carried in above freezing rooms has a definite bearing on the question of pile heights.

Container Durability

We who have been concerned with the everyday problems in connection with the storage of commodities in fibreboard containers have learned from bitter experience that shell eggs, dried fruits and other commodities stored in this type of container cannot be safely piled as high as products in wooden cases. Little technical information was available until quite recently when some constructive, scientific tests were conducted by K. Q. Kellecutt of Forest Products Laboratory in Madison, Wis. Mr. Kellicutt has published his findings in a paper entitled "How Long Can Corrugated Fibreboard Boxes Be Safely Stacked?" and since some of the work was done in a refrigerated warehouse interested executives are referred to it for details which are beyond the space limitations of this discussion.

It has been a common experience with refrigerated warehousemen who have stored dried fruits from the West Coast, where they started out completely filling the container to find that when they reach storage so much moisture has been lost and

the product has settled to such an extent that the boxes are actually slack packed. Even with the most careful method of hand piling it has not been unusual to find a tier has toppled over into the aisle—and this with the product piled but 8 or 9 feet high! What will happen if unit loads are tiered up to 18 or 20 feet is left to the reader's imagination.

It is not possible to cover all the products usually stored in coolers, but mention should be made of nuts in bags—both shelled and unshelled. Take whole walnuts for example. If they are high piled the nuts in the lower part of the bottom pallet will be broken, and shelled nuts crushed. There are, of course, cooler products which can be stored high—anything in good firm wooden cases, such as nuts in export boxes, but citrus, fruits in baskets and a host of others have definite pile-height limitations.

Frozen Products

When we turn our attention to products stored in the freezer the situation is, of course, brighter. Fish in sound wooden cases, fruit juice in barrels, frozen juices in cans—these and similarly packed commodities can all be stored very high, but what about frozen fruits and vegetables in consumer and institutional packs? Once again we come up against the fibreboard container. All is well, provided only that the individual container is well filled and the containing carton is designed to fit the consumer packs it holds.

All too frequently a frozen food processor, unmindful of the ultimate storage problem will use the same consumer package for a variety of products which, because of their various densities do not fill the cubic space uniformly and then he will use a standard outer container to hold a variety of consumer packs. This just compounds the errors from the standpoint of good storage. The same laxity is displayed in packaging 50-pound containers. They reach the warehouse either full or only partially full, and in the latter case there is trouble ahead for the warehouseman who wants to pile the products to economical heights.

In any event, the storage of frozen products in fibreboard containers must be done with extreme care. In no instance is an overhang over the edge of the pallet to be tolerated unless the warehouse superintendent enjoys walking down an aisle and seeing the edges of the containers drooping over the pallet like a Dali watch! It is also necessary to line up the edges carefully so that the pressure will be transmitted down through the sides of the containers. A poorly positioned package at the bottom of a tier may give way and result in the entire tier toppling over —or at least settling precariously.

Compression Loads

In a well constructed one-story warehouse the question of floor loads is not a limiting factor in the matter of pile heights. Figures on floor loads are significant, however, from the standpoint of the pressure which must be sustained by the bottom packages in an unsupported tier. The densities of frozen fruits and vegetables vary from 23 lbs. per cu. ft. for such products as broccoli to 61½ lbs. per cu. ft. for apricots. If we think of the latter piled in a room with a 20 ft. ceiling height—a popular figure in current discussions on the subject—there is a floor load of over 1000 pounds per square foot under an 18-foot pile!

Refrigerated warehousemen who are contemplating adding or building new freezer space are cautioned against expecting too much advantage in 20-foot ceiling heights. From a critical examination the author of this article states a generalized conclusion that for wooden cases a 20-foot ceiling is practical; but for consumer or institutional packs of frozen foods, ceilings of 10 to 15 feet are ample.

Another factor which deserves our attention in considering the question of feasible pile heights is the matter of speed in handling. None of us needs to be told that the upper portions of the pile are the costly ones to tier by hand—and the same holds true for mechanical handling, although not necessarily to the same extent or for the same reason. An example will illustrate this point. During the Florida citrus-receiving period, space in a certain warehouse was sufficiently available to permit the storage of the unit loads one-high instead of two. The production in this house jumped from a normal of 2400 to 4200 pounds per man-hour. (an increase of 75 percent) simply because the necessity for double-tiering was eliminated.

This increase in productivity was due to an often over-looked factor in mechanical handling. High-lift fork trucks do not elevate with uniform speed. After the first few feet of lift the telescoping mechanism starts to function and this adds to the weight which must be lifted by the machine —hence the rate of speed drops, so that a machine with two or three stages of telescope will have successively increased weight added to its burden. Some warehouse operators have overcome the necessity of high lifts by elevating two unit loads at a time, but this necessitates, of course, a machine with double the capacity for one load. It's the old story of not being able to eat your cake and have it too.

Conclusions

We have now looked over the field by considering critically the various factors involved in high piling of commodities in cold storage. Can we draw any conclusions? Indeed we can.

Let's eliminate the use of "crutches" by saying that all such devices as box pallets, racks, mezzanines, etc. present too many operational disadvantages to be practical. In order to use simon-pure unsupported tiering of multiple loads the answer boils down to this. If a warehouse can be sure that it is going to receive only frozen products which are packaged in firm wooden cases—20-foot ceilings are practical. If, on the other hand, it expects to house consumer or institutional packs of frozen fruits and vegetables 3-high unit loads under a 15-foot ceiling is the practical limit. For the long run of cooler products even this figure is too high. The present day ceiling heights found in many multi-storied plants—10 feet under sprinklers—is ample.

If one went around the country and saw the plants which have been erected with 20-foot ceiling heights and observed how the products are actually piled in them he would most assuredly say to any one who is contemplating a new building and is figuring on this height, caution!

Railroads Use Pre-Cooked Foods in Diners

PRE-COOKED frozen foods will soon be used in volume by the nation's railroad to cut waste and meet rising food and labor costs in their diners, it is reported. Several roads have been testing the idea. On February 1, the Rock Island line instituted a complete program for its diners. Deep freeze chests and warming ovens will replace coal ranges and steam tables. The food will be cooked in the line's Chicago commissary.

THE ICE INDUSTRY

NATIONAL ASSOCIATION OF ICE NDUSTRIES

Executive Offices
1706 L St. N. W., Washington 6, D. C.

Executive Secretary
Guy W. Jacobs, Washington, D. C.

President
Wm. J. Ayers, Memphis, Tenn.

First Vice-president
Paul H. Andres, Oklahoma City, Okla.

Second Vice-president
E. L. Gunn Jr., Atlanta, Ga.

Treasurer
Geo. Steers, Jr., Kalamazoo, Mich.

THIS MONTH IN BRIEF

A conference on increase of ceiling prices for ice under the OPS was held by the Ice Industry Advisory Committee and OPS officials. Industry spokesmen recommended an amendment to the supplementary regulation to include buyer-seller contracts and other pricing methods.

Late information on compliance by members of the ice industry with regulations of the Federal Wage and Hour Law has been issued by The Public Contracts Division of the U. S. Department of Labor. Recently released statistics show, according to the Department, that there is room for improvement.

Meetings of unit ice associations during the month show an awakening interest in merchandising and marketing of ice. At annual conventions of the Ohio, Michigan, Oklahoma, and North Carolina Associations the use of ice for sweet corn from field to consumer, and icing fresh meat mechanical cases were given top billing in the programs and in Florida a merchandising conference was held where these new markets were likewise emphasized.

Ice Industry Advisory Committee Confers on Ceiling Price Increase

A STUDY to determine whether the manufactured ice industry can qualify for ceiling price increases under the Office of Price Stabilization's earnings standard was proposed March 7. The suggestion was made during a meeting between members of the Ice Manufacturers and Distributors Industry Advisory Committee and OPS officials.

Ice Manufacturers and Distributors industry advisory meeting: Wm. J. Ayers, Memphis, Tenn., President National Association of Ice Industries; George Steers, Kalamazoo Ice & Fuel Co., Kalamazoo, Mich.; J. Reimer Espy, Espy Ice Co., Denver, Col.; Harry Holland, chief, OPS Confectionery Section; John Paschke, economist, OPS Grocery Products Branch; Harold P. Rosenberg, Office of the Chief Counsel, OPS; Ralph E. Spencer, economist, OPS Grocery Products Branch; Francis W. Dunn, Office of the Chief Counsel, OPS; William A. Schmid, City Products Corp., Chicago, Ill.; Peter A. Buehrman, American Ice Co., New York, N. Y.; and William P. Wagg, Standard Ice Co., Philadelphia, Pa.

The earnings standard provides that it may be used for price relief if an industry can show that its current earnings are less than 85 per cent of earnings in the best three of the four years 1946 through 1949. Spokesmen for the ice manufacturers estimated the industry earnings have dropped to 50 percent of the best three years in this period.

While seeking relief under the earning standard, industry committeemen asked the OPS officials to consider steps which can be taken immediately to relieve what they described as depressed ceiling prices. They said a supplementary regulation that permits the industry to adjust its General Ceiling Price Regulation base period ceiling prices to reflect seasonal price differentials had afforded some relief, but not enough because seasonal prices in effect before GCPR were depressed. GCPR froze ice ceilings at their levels during the winter months of December, 1950, and January, 1951, when ice prices were at a seasonal low.

OPS officials pointed out that applications for price ceiling adjustments could be filed under the Capehart amendment to the Defense Production Act. Committeemen said, however, they did not believe the

Capehart amendment would afford the relief the industry needed.

Industry spokesmen recommended amendments to the supplementary regulation to include buyer-seller contracts and other pricing methods.

The reports on the meeting made by both the committee members and by government officials leave no doubt that much was accomplished for the good of the ice industry. Government representatives who were in charge of the meeting said it was the finest OPS Advisory Committee meeting they have ever attended. Since these officials meet with similar advisory groups, they should be qualified to judge the capabilities of members of the Committee.

The meeting occupied an entire day, with detailed discussions of every phase of ice company operations pointing out the particular inadequacies of SR-45, plus emphasizing the immediate need for effecting measures that will correct these inadequacies.

A bulletin issued by the National Association of Ice Industries states that much work lies ahead in developing and making real these relief measures but that it is felt that as a result of the meeting, this job can and will be done with greater ease and speed; mindful, of course, that all transactions with government are, at best, not fast enough.

The recommendations and requests that were made by the Ice Committee are currently being studied and considered by the OPS. It will be a continuous and determined objective, with the aid and support of the Industry Advisory Committee, to bring about additional price relief measures for the industry in time for them to be used during the 1952 ice season.

Ice Company Changes Over to Cold Storage

THE Big Four Ice & Cold Storage Company, Oklahoma City, Okla., will be converted from ice manufacture to cold storage according to an announcement by company officials. Paul H. Andres, president, said the changeover will cost about $100,000. Brine tanks for freezing ice will be torn out, along with ice storage rooms, to make way for additional cold storage lockers, he said. The firm's eight ice routes were sold to the Liebmann Independent Ice Co., 200 S. Klein.

Ice Industry Compliance with Amended Fair Labor Standards Act

Here is the latest information on how members of the ice industry are complying with the Federal Wage and Hour Law, the Fair Labor Standards Act, as amended. It is based on statistics of the U. S. Labor Department's Wage and Hour and Public Contracts Division which have just been released in the Division's 1951 annual report. It is published here to call attention to the Labor Department's policy as to the importance of compliance with the Act.

ARE ice manufacturers generally complying with the amended Fair Labor Standards Act? Does the record indicate that management has a firm grasp of the Fair Labor Standards Amendments that went into effect on January 25, 1950? Recently released statistics on the first full year of operations under the amended Federal Wage and Hour Law show that there is room for improvement, according to a statement issued by the Wage and Hour and Public Contract Division of the U. S. Department of Labor.

According to the 1951 annual report, 70 percent of the establishments investigated in the manufactured ice industry during the past fiscal year were found to have violated the Act's minimum wage, overtime pay or child-labor provisions.

"The 1951 record makes it clear that greater efforts on the part of some members of this industry would pay off in reduced liabilities for back wages owed employees," points out Wm. R. McComb, the Divisions' Administrator. His report shows that a total of $27,351 in back wages was paid to 186 employees, as a result of the Divisions' activities. This sum does not include amounts awarded by courts to employees who exercised their statutory right to sue for back pay and liquidated damages.

"Although most employers know that the amendments raised the minimum wage to 75 cents an hour from 40 cents, the Divisions found that a sizeable minority of establishments, 39 percent of those investigated, had failed to observe this requirement when paying some of their employees" states McComb.

"Even more extensive were overtime violations, found in 67 percent of the investigated establishments. Employers should remember that the amended Act continues to require payment of at least time and one-half the employee's regular rate of pay for all hours worked in excess of 40 in the workweek, except where the Act specifically provides otherwise. What the amendments did was to define the regular rate to include all remuneration for employment except certain specified payments."

Failure to comply with the Act's child-labor provisions was disclosed in 9 percent of the investigated establishments, McComb noted. The child-labor requirements set a minimum age of 16 for most jobs with 18 as the minimum for occupations designated hazardous by the Secretary of Labor. Employment of boys and girls of 14 and 15 years of age is permitted in a few types of jobs—such as office and sales work—under strict restrictions on hours and working conditions.

The Administrator wants members of the industry to know that the violations found last year were not representative of the compliance record of all employers whose employees come within the provisions of the Act. The Divisions' policy is to make investigations where there is reason to believe that violations will probably be found. Moreover, experience demonstrates that the great majority of employers intend to comply with the Act in most cases, failures are due to misunderstandings about the statutory provisions.

To assist the ice industry in attaining full compliance, Mr. McComb invites any employer who has questions about the Federal Wage and Hour Law to inquire of the nearest regional office of the Divisions. These offices are located in the following cities: Boston, New York, Philadelphia, Birmingham, Cleveland, Chicago, Kansas City, Dallas, San Francisco, and Nashville.

Esphorst Re-elected

V. A. ESPHORST, secretary-manager of the Missouri Valley Ice Manufacturers Association, has been re-elected chairman of the Council of Trade Association Executives of St. Louis.

Reports from Unit Ice Associations

Corn Icing and Meat on Ice High Lights Of Annual Ohio Ice Convention

NEW opportunities ahead was probably the outstanding theme of the 34th annual convention of the Ohio Association of Ice Industries held at the Deshler Wallick Hotel, Columbus, Ohio, February 25 and 26. Two talks, one on corn icing in Ohio, and one on the meat-on-ice program, especially caught and held the interest of the convention. There were other high points, including report of National Secretary, Guy W. Jacobs, a report on merchandising crushed ice in Fort Wayne, Ind., a safety talk, a message from an Illinois ice man, and a discourse by an Ohio banker on the probable future business trends. The annual banquet was held as usual Monday evening, with dancing and an entertaining address by Harvey C. Hahn of Dayton.

The New Merchandising Corn Icing and Meat on Ice

Probably the outstanding event of the program was the discussion at the Monday afternoon session of the two newest merchandising projects in the ice business, corn icing and meat on ice, by Arthur L. Smith, an Ohio sweet corn grower and Prof. R. W. Davis of California, who has brought the meat on ice program to the attention of the ice industry. The entire session was given over to these two subjects.

Mr. Smith, who expects to have 150 acres of sweet corn this year, near Columbus, first became interested in corn icing two years ago. His corn is harvested in the morning, dumped in a cold water bath, then packed in wet-strength paper bags, five dozen ears per bag, then iced with 20 pounds of crushed ice. In these bags the corn keeps fresh and sweet and retains top quality for marketing in retail stores up to noon the following day. These bags, he said, are ideal for that purpose.

He cited an interesting reaction on the part of customers who when they first saw iced corn on the market jumped to the conclusion that it was old corn, iced to save it. But when they learned of its high quality they became enthusiastic users and soon would buy nothing else.

Mr. Smith said that corn growers need better equipment for their icing operations, because now they are forced to use home-made and makeshift equipment for their processing operations. He concluded his talk with a number of slides showing the present methods now being used for both processing and retail display.

An illustrated talk on the meat on ice program by Prof. R. W. Davis of California proved most interesting. Prof. Davis probably knows more about this subject than any other ice man and has been promulgating the idea at various ice conventions during the last two years. His talk was largely a reiteration of his discussion of the subject at the National Ice convention at Houston which was reviewed in the January and February ICE AND REFRIGERATION.

It is surprising, he said, how fast this idea has been taken up by the ice men all over the country, and it is one of the most prolific deals the industry ever had because every meat market in the country, large or small, is a potential customer. A new feature of his talk was a recorded interview of a meat market operator in Akron, Ohio who has been using ice in a mechanical meat case for four weeks. He is favorably impressed because it eliminates or reduces shrinkage, trimming, spoilage, mark downs and drainage and provides insurance against break down of the mechanical refrigerating equipment.

Prof. Davis offered some new statistics showing savings as follows: shrinkage 85-100 percent; trimming 85-100 percent; spoilage 85-100 percent; drainage 85-100 percent; mark downs 85-100 percent; down grading 85-100 percent; scrap sales 75-85 percent.

Giving a spot check of the potential market, he cited the number of meat markets in a few Ohio cities as follows: Akron 728; Canton 477; Cincinnati 1839; Cleveland 2205; Columbus 813; Toledo 673. Every one of these markets, he repeated, is a potential ice customer, not only for their meat cases but also for their walk-in coolers and their dressed poultry counters and vegetable icing.

Ohio Officers for 1952

President, Gilbert P. Bush, Jr., Gallipolis

Vice-president, Wm. H. Adams, Dayton

Secretary-treasurer, H. Elizabeth Shannon, Steubenville

Directors: Wm. H. Adams, Dayton; Walter B. Blessman, Akron; Gilbert B. Bush, Jr., Gallipolis; Stuart A. Muenter, Tiffin; M. L. Ottman, Cleveland; Frank P. Sedler, Cincinnati; Wm. R. Sneed, Hamilton; Curtis M. Shetler, Canton; Morgan G. Williams, Columbus; Jack Whitlock, Warren.

Opening Session

The convention was opened Monday forenoon by Stuart Muenter, president. Following an invocation by the Rev. Raymond W. Hibbard of Columbus, tribute was paid to the memories of five members who had died during the year: Howard Haupt, Akron; John Zilisch, Milwaukee; James Cullen, Cincinnati; Herbert Schory, Canton; Edward Mild, Mt. Vernon. A tribute and expression of appreciation was then extended by Harold J. Roth to J. L. Glass, past president.

Reports of Officers

Reviewing the work of the association for the past year, Mr. Muenter said it is the duty of every American to do all he can to protect the American way of life. A primary duty is to vote at all elections and to keep in touch with members of Congress on legislation affecting their interests. While labor and other special groups exert their influence and while, when big business runs into difficulties the government takes a hand, small business has no voice in the conduct of government except those of individuals. It is important, therefore, that individual ice men know about and take an active interest in what their government is doing. Unless they do, he warned, our national government may drift into a politico-economic condition similar to that in England where the initiative of individuals is stifled. The national debt, for instance, he said is something which should alarm all Americans.

The Ohio Association, he said, is among the best state associations in the industry, but they should go fur-

ther and put into effect the newer merchandising ideas that have been developed by research and expounded in bulletins and at the various ice conventions. These conventions have the leading ice men on their programs, but every ice man has something to contribute and should make himself heard.

Miss Elizabeth Shannon, acting secretary-treasurer, reviewed the work of the association during the past year, touching on the activities of the Legislative, Merchandising, Research, and Safety committees. The financial report showed the association to be in good shape, with a comfortable cash balance. Miss Shannon has filled this position since the resignation of Guy W. Jacobs last year to take over full-time responsibilities as secretary of the National Association of Ice Industries.

Merchandising Crushed Ice

Dick Fischer of Fort Wayne, Ind., gave a brief sketch of his work in selling ice for vegetables, dressed poultry and fresh meats. Too many ice men, he said, agree that such merchandising activities are good, but think they can't be carried on successfully in their town. To show that it could be done, he said, he left Akron, Ohio, where he knew many people, and moved to Fort Wayne where he knew no one, about two years ago. Here, he had slow going at first, but gradually has produced results. He now has 150 mechanical meat cases using ice and in this he sees one of the biggest opportunities the ice industry ever had. Any ice man, he continued, can get all the information he needs about this and other merchandising work from the National Association and adapt it to their needs.

One of his merchandising stunts was to show a sliced watermelon frozen in a cake of ice adjacent to watermelons imbedded in and with crushed ice sprinkled over them. The sales were very gratifying. The same idea was used for vegetable icing and chicken on ice with excellent results.

Looking to the future, Mr. Fischer pointed out that the industry has seen vegetable icing, poultry icing and meat-on-ice accepted as the most modern method of refrigeration and suggested that it might be possible for research to develop some angle to show that ice is best for household refrigeration. It is the ice man who isn't pushing his business, he concluded, who is causing its decline; there isn't an ice man anywhere who can't do a better selling job of his product.

The National Association

Guy W. Jacobs, executive secretary of the National Association of Ice Industries outlined its work and activities. Its duty, he said, is to keep its members informed on the important national issues as they affect the industry, and this is being accomplished through the various departments.

One of the specific accomplishments of the Legal Department was the revision of the price control regulation as it affects ice. The Ice Industry Advisory Committee, organized some time ago as an aid to the OPS has not, as yet, been active, but a meeting was scheduled for March 7. Another major activity of the Department is to keep in touch with developments resulting from a re-issue of a patent on sized ice. If legal action is started on this patent again, he said, the association will take whatever action is necessary.

The Public Relations department, he said, has created much favorable publicity in magazines and newspapers and in trade publications, telling the general public what ice will do. Members of the industry are kept informed on all this by ICE AND REFRIGERATION. Tie-ins are being effected with other industries such as the Tea Bureau, beverage associations, exhibits and showing of the ice film. Along with this, for 1952, there will be a continuation of National Ice advertising in trade publications.

The Research and Engineering Department, through Mr. Austin, is doing effective work in the procurement of materials. While most ice companies are in a favorable position in this respect, those who have needed materials have had little difficulty getting them. However materials are expected to become tighter and those who will need anything during the summer are advised to place their orders now.

The research end of the department has been centered chiefly on uncovering facts that are immediately available. The corn icing program in Ohio, Indiana and Illinois is a good example. As a direct result of this work, one of the big eastern grocery chains is now lining up sources of supply for iced corn with a view to selling only corn that has been iced. One of the biggest and most fruitful research projects has been the meat on ice program carried on jointly by The Union Ice Company of California and the National Association, which gives promise of a huge new market. Another project is the use of ice for flowers. Every flower shop in the country is a potential customer.

From the viewpoint of the National Association, he concluded, the future of the ice business looks very good and it is no more afflicted with problems than other businesses, and ice companies if they will apply the known rules of merchandising, can expect continued good business.

Final Session

The final session Tuesday forenoon was used for convention and association business, including committee reports, election of directors, presentation of safety awards, an address on safety, a talk by an Illinois ice man and a review of the general business conditions by an Ohio banker.

New members of the board of directors were elected as follows: Wm. R. Sneed, Hamilton; Morgan G. Williams, Columbus; Jack Whitlock, Warren.

During this session a new office chair for use in his Washington office, was presented to Guy W. Jacobs, executive secretary of the National Association and former secretary of the Ohio Association and an Ohio ice man. The presentation was made by Walter P. Blessman.

Following report of convention committees, safety awards for the year were presented by Gilbert P. Bush, Jr., to the following Ohio ice companies: City Products Corp., Station 1, Columbus; Smith Coal & Ice Company, Tiffin; City Products Corp., Station 52, Dayton, and the Loraine Crystal Ice Company, Loraine.

Safety

This was followed by an address on safety by Jack Kidney, safety director, Goodyear Tire & Rubber Company, Akron. Mr. Kidney said that safety work is far more important than many other things upon which business executives spend much time. Dramatizing this statement, he called attention to the fact that during World War II, casualties suffered by the American troops amounted to 261,000 deaths and 180,000 wounded while during that same identical time 400,000 people were killed and 40,000,000 people were injured in accidents within the United States.

Members of the Ohio Ice Association, he said, have a big sphere of influence and have an opportunity to do something about it. A safety program in an industrial plant not only will reduce injuries, but will also improve morale and will help to reduce the cost of compensatory rates.

Illinois Ice Plant Not For Sale

John Glenn of Beardstown, Ill., in an interesting talk explained why his ice business is not for sale. Beardstown, he said, is a small town of about 6,000 population and has no large industrial plants, therefore their ice is sold in small quantities. Sixty percent of the ice sold by this plant is in the form of processed ice at an average selling price of $9.65 a ton.

Pointing out some of the advantages of the ice business, he said it was more stable than most other businesses, supplying a demand that remains fairly constant during both good and bad times; is subject to a minimum of competitive venture capital, and is backed up by a huge fund of information emanating from the State and National Associations. For instance, the Research Department of the National Association has created new markets for considerable amount of ice through vegetable icing, poultry icing, and meat on ice. It is such work as this by the Research Department that will keep many ice companies in business, he said.

The domestic ice business is rapidly disappearing and something will have to be developed to take its place. In his own market, he said poultry icing promises to develop into greatly increased tonnage. Bringing this picture home to the Ohio ice men, he pointed out that in Ohio only one out of six broilers consumed are produced in that state. There is no reason, he continued, why poultry production should not be greatly increased, thereby increasing the market for ice.

Business Forecast

An interesting analysis of present-day business conditions was presented by Paul E. Belcher of the First National Bank, Akron, Ohio. Mr. Belcher pointed out that the ice man is not alone in having to work and build his business in a declining market. There are many others including the movie industry in that same condition. The answer, he said, is just what the ice industry is doing—the use of research to locate new markets, followed up by advertising and selling.

Regarding general business conditions, he said, that unemployment which is affecting some cities, probably would improve during the balance of this year both in defense and in civilian production. Sales of commodities are now somewhat less than a year ago but they are above 1950 and for the year as a whole he predicted that there would be very little, or no, decrease. Inventories are high and those goods which are subject to obsolescence or depression can only be moved by special sales. But he directed attention to the fact that inventories which are decreased, whether by special or normal sales, will have to be replaced. For that reason, he thought, that prices during the balance of the year will remain substantially as they are.

Regarding wages, general increases all along the line, seems to be in the picture and these increases cannot be handled in any other way except in passing them on in the form of increased prices. But because they cannot be passed on promptly and because of heavy taxation, capital profits for this year will be down. Since this is election year, Congress will do little actual legislation.

The international situation, he said, will probably remain about the same.

The Ice Industry

As long as the defense program continues, there will be no decline in business and as long as this situation exists, there is no reason why business men should not use it to their advantage.

The convention was brought to a fitting close by George Steers of Kalamazoo, Mich., past president of the National Ice Association and active in National Association work for many years, who, in a short extemporaneous talk, complimented the Ohio convention on the high interest of the program specifically as it pointed out possibilities that many ice men never knew existed. There is nothing the matter with the ice business, he said, that the ice men themselves cannot cure.

Michigan Ice Association Holds Annual Meeting—Talks on Practical Subjects

TURNING its attention chiefly to practical subjects of immediate interest, the 35th annual convention of the Michigan Ice Industries Association was held February 12 and 13 at the Detroit-Leland Hotel, Detroit, Mich.

After the report by the secretary and appointment of committees, Francis X. Timmons, Director Public Information and Marketing Department, National Association of Ice Industries, told of the operation of the National Association and what is being done to help the members of the ice industry, including cooperation with other industries to promote the use of ice. He also explained how they work with government agencies for the benefit of the icemen.

Leonard Borin, Borin Brothers, Inc., Detroit, Mich. presented very ably the impressions and conclusions of a young ice executive in regard to the future of the industry. It was a well prepared, well delivered and well received discussion from one who is not bound by some of the old customs practiced by the old time ice man. This was followed by a report from various members of the ice industry in Michigan of their activities during 1951, both in the ice business and any other type of business they are interested in.

Eugene Wellman, Detroit City Ice & Fuel Co., Detroit, gave a very stimulating and instructive talk on what all ice men need to do to promote the sale of ice to old and new markets.

Meat Icing

Opening the Wednesday session, Mr. Timmons gave a detailed outline of the results of the meat icing project conducted by the University of California. During his talk colored slides and tape recordings of actual interviews with users of ice on meat were shown and heard, illustrating the good results obtained by market operators with this method of displaying and preserving meat. This was the same presentation given by Prof. Davis of Union Ice Company of California at the national convention in Houston, Texas. Every company, large or small, was urged to get this program under way in their respective communities.

Open Forum and Round Table Discussions were conducted with E. T. Scott, Consumers Ice Company, Grand Rapids, Michigan as moderator. The discussion leaders were O. L. Siegman, Detroit City Ice & Fuel Co., Detroit, on "Administrative Problems, Cost of Operations, etc."; Vernon Powell, Quality Ice Company, Cadillac, "Sidelines and Diversification"; Henry J. Bloom, Consumers Public Service Co., Detroit, "Vending Stations"; David Martin, Detroit City Ice & Fuel Co., Detroit, "Vegetable, Meat, Fish and Poultry Icing." As usual, many instructive and helpful ideas were developed in this discussion, and wishes were expressed for the continuance of this type of meetings.

The Ice Industry

The annual banquet and floor show was held Tuesday evening at the Elmwood Casino in Windsor, Canada. This proved to be a memorable occasion, with good food and a fine show, and dancing during and after dinner.

A sizable group of Canadian icemen joined the Michigan group at the Wednesday session and participated in the various discussions.

Officers and Directors

At the annual meeting of the board of directors following adjournment of the convention, the following officers were elected:

President, O. A. Weber, Flint.

First Vice-president, Leonard Borin, Detroit.

Second Vice-president, Wesley H. Brown, Benton Harbor.

Secretary-treasurer, Edward W. Jackson, Kalamazoo.

Elected to the board of directors were the following: Joseph J. Oderman, Detroit; O. A. Weber, Flint; Leonard Borin, Detroit; Wesley H. Brown, Benton Harbor; Bert Blackmer, Muskegon; Vernon Powell, Cadillac; Wilbur Kooienga, Grand Rapids; Edward Waier, Saginaw.

At this meeting the question of cost of truck operation in relation to the stops made, miles driven and amount of ice delivered was discussed fully. The secretary was directed to include this subject on the agenda for the spring conference in May.

North Carolina Ice Association

LEWIS H. POWELL, Secretary

WITH an attendance that was equal to last year, the annual convention of The North Carolina Ice Association was held at Raleigh, March 10 and 11. An interesting and instructive program was presented.

The convention opened with a report from President D. M. Howell of Greensboro, followed by a talk on legal aspects by John Anderson of Raleigh, a discussion on inflation by Joseph H. Wolfe, executive secretary of the North Carolina Bankers Association, and a talk on Customer Relations by M. Thos. Dunulap, personnel director for the Carolina Power & Light Co.

Association and marketing subjects were given consideration at the second session Monday afternoon. C. P. Austin, talked on the National Ice Association. R. W. Davis, Union Ice Co., San Francisco, gave a talk on meat icing. J. R. Holton, Swift & Company, told what his company is doing to promote the sale of ice. At the final session Tuesday morning OPS regulations were discussed by George E. Bennett. Frank M. Culvern, division safety director of the Southern Bell Telephone Co., Charlotte, N. C. gave a talk on Safety. C. T. Baker, consulting engineer of Atlanta, Ga., told how to reduce plant operating costs.

The following officer and members of the executive committee were elected:

President, Lawrence C. Rose, Wilmington.

Vice-president, L. G. Geddie, Mt. Olive.

Secretary-treasurer, Lewis H. Powell, Raleigh.

Executive committee: D. M. Howell, Greensboro; R. V. Sisk, Charlotte; A. J. Brinson, Lumberton; E. J. Jeffress, Goldsboro; J. H. Lane, Charlotte; E. L. Lowie, Gastonia; W. H. Sherrill, Hickory; G. S. Sherrod, Greensboro; L. D. Gore, Morehead City.

48th Annual Oklahoma Ice Convention Provides Full Program

THE 48th annual convention of the Oklahoma Association of Ice Industries was held at The Burlingame Hotel, Bartlesville, January 20, 21 and 22. Some 150 members and visitors were attracted from all over the state of Oklahoma as well as adjacent states.

Principal out-of-state speakers were Guy W. Jacobs, executive secretary of the National Association of Ice Industries; W. F. Leonard, Jr., The Southland Corp., Dallas, Tex.; John H. Glenn, Glenn Fuel & Ice Co., Beardstown, Ill.

Oklahoma icemen on the program were: Paul H. Andres, Southwest Ice & Dairy Products Co., Oklahoma City; Paul Liebmann, Liebmann Properties, El Reno; C. D. Payne, Peoples Ice Co., Tulsa; Sloan Childers, Southwest Ice & Dairy Co., Oklahoma City, Okla. Bartlesville ice men contributing to the program were: W. W. Keeler, Phillip's Petroleum Co.; and Ed C. McClintock, Crystal Ice Co. Mr. McClintock was chairman of the convention committee and the man who brought the convention to Bartlesville. Both Mr. McClintock and his father before him, have served as president of the Oklahoma Association of Ice Industries.

Mrs. McClintock was official hostess to the wives who were present, and arranged for a special luncheon and trip to Woolaroc. A banquet and dance was held Monday evening.

Officers were elected as follows:

President, Earl O. Johnson, Oklahoma City.

Vice-president, C. D. Payne, Tulsa.

Vice-president, Paul Liebmann, El Reno.

Treasurer, Clyde Simmon, Oklahoma City.

Executive Secretary, Harry T. Hudson, Jr.

Newly elected officers of Oklahoma Association of Ice Industries: Harry T. Hudson, Jr., of Murray, Otto & Hudson, Oklahoma City, re-elected as executive secretary and general counsel; C. D. Payne, Peoples Ice Company, Tulsa, first vice president; Earl O. Johnson, Liebmann's Independent Ice Co., Oklahoma City, president; Paul Liebmann, Liebmann's Independent Ice Co., El Reno, second vice-president; and Clyde Simmon, Big 4 Ice & Cold Storage Co., Oklahoma City, re-elected as treasurer.

Florida Merchandising Meetings Discuss Public Relations and Sales

FIFTY seven ice men from northwest Florida, Georgia and south Alabama were at the one day merchandising meeting held in Panama City, Florida, February 14.

President R. A. David in greeting the enrollees, stated the Florida Ice Association was constantly seeking ways and means of serving its membership and that it was gratifying to learn so many ice plant owners and employees in that section of the state had proven, by their attendance, that they were interested in promoting better merchandising in the ice industry.

Lecturers and leaders at Sales Clinic held in Gainesville, Florida, February 28. Front row: Dr. Lowell Yoder, University of Florida; Dr. Frank Goodwin, University of Florida; R. A. David, president Florida Ice Association; C. A. Kalbfleisch, Swift & Co., Nashville, Tenn. Back row: Muriel Washburn, exec. secretary Florida Ice Association; J. F. Causey, City Products Corp.; C. C. Baxter, City Products Corp.; Glen Greene, Royal Palm Ice Co.

Dr. Frank Goodwin with the University of Florida, held his audience's undivided attention while discussing "Little Things Count." Dr. Goodwin forcefully brought home the fact that real salesmanship is built on one's attention to the little things that promote good will.

J. F. Kilbourn, owner of the Kilbourn Ice Company in Panama City, gave his conception of the report made by R. W. Davis at the National Convention of Ice Industries on the advantages of keeping fresh meats on ice. Facts established in the research of this new market for ice by the University of California were reviewed. The favorable reactions of meat retailers were brought out and Florida ice men were urged to contact owners of meat markets in their city and get them to use this new method.

P. S. Pablow, representing the Poultry Division of Swift & Company, told how his company promoted the use of ice in the processing and preservation of their dressed chickens and turkeys because they had learned, through extensive experiments, that it was by far the best refrigerant for them. The poultry expert displayed large and small advertisements stating the Swift Premium chicken was kept "country fresh" on ice.

C. C. Baxter, Northern District Manager of the Florida Ice Division of City Products Corp., gave many examples of why "Courtesy Has Cash Value" and talked about its particular application on ice plant platforms and routes.

After a delicious seafood dinner, served by the ladies of the St. Andrew Episcopal Church, the second half of the meeting was opened by Dr. Goodwin.

"It's Up to You" was the title of the professor's second lecture and he proved conclusively why people like to be treated courteously and the things that can be done and said that will make a man successful in any kind of business.

John Causey, widely known throughout the ice industry as an authority on merchandising ice appliances, closed the meeting with a thought provoking discussion of the importance of every ice manufacturer selling ice using appliances. He gave reasons why every ice plant employee should be proud of the service he renders his community and listed many good selling points. "Times Have Changed" was the title of a film shown by Mr. Causey depicting the advantage of using modern equipment and sales methods.

Second Meeting

A second meeting, especially set up for route and platform men, was held in the new Student Service Center on the campus of the University of Florida, Gainesville, Fla., February 28.

Dr. Lowell Yoder with the Department of Business Administration at the college, demonstrated the value of "The Right Approach"—why a positive rather than a negative attitude paid dividends and the importance of a smile.

Opening a panel, devoted to a discussion of new markets for ice, C. A. Kalbfleisch, Swift & Co., poultry expert, said that Swift's promotion of dressed poultry on ice was the result of concerted efforts that involved years of experiments.

S. E. Rosenberger, assistant crop specialist with the Extension Division of the University Agricultural College, displayed large wet-strength paper bags especially made for the shipment of sweet corn with ice. He said that more and more farmers are realizing that they can get higher prices for their sweet corn if shipped, even to local markets, in this iced container.

Charlie Baxter, northern district manager of City Products Corp. in Florida gave an interesting talk on selling. He urged all employees to learn the answers to questions relative to their product and appliances and to adopt new merchandising methods.

Student participation in selling ice refrigerators, produce, poultry and fish cases was one of the most informative and interesting sessions. Supervised by J. F. Causey, special assistant to the manager of City Products Corp. properties in Florida, one participant in each skit acted as a sales-resistant customer and the other as the salesman.

A similar sales meeting is planned for southeast Florida ice men in Miami, May 6.

The Ice Industry

Canadian Association Of Ice Industries

A VERY successful mid-winter ice conference was held by the Canadian Association of Ice Industries at Windsor, February 12. Both morning and afternoon sessions were extremely lively with all of the delegates participating. There were no long speeches from anyone, rather a question and answer type of forum with everyone taking part. It was by far the most successful conference to date. The attendance was quite satisfactory and interest was kept at a high pitch during the entire day.

The following day—February 13, members were invited to attend the morning session of the Michigan States Ice Industries Convention in Detroit and a group of Canadians took advantage of this generous offer and attended the meeting.

The Association is making a mailing of "Meat On Ice" literature available to all its members and in quite a number of areas there is a great amount of interest in this new market for ice. Some dealers are reporting astounding results and it is quite evident, even at this early date, that "Meat On Ice" can be developed into a real money maker and tonnage builder.

Plans are now being made for holding a spring conference similar to the one held in Windsor, somewhere in Eastern Ontario, during the month of April. These conferences have unquestionably been of great assistance to the Association and the interest is even keener in them than in conventions. It is quite evident that a number of men who are operating small businesses cannot afford the time to attend conventions far distant from their home town and by bringing the conference to their area, they are able to attend for one day and return home the same evening.

Mountain States Association Of Ice Industries

J. R. ESPY, Secretary

THE annual convention of the Mountain States Association of Ice Industries will be held at the Brown Palace Hotel, Denver, Colo., April 11-12, 1952. The program has been arranged on the conference plan. It will include sessions on fresh meat icing, new tonnage builders, and an engineers' session. Early reservations indicate a good turn out of members.

Prizes Awarded For Seattle Ice Sculpture

PRIZE awards were distributed for the spectacular sculpturing in ice that was a major feature of the Annual Culinary Art Exhibit at the Hotel Olympic, Seattle, this Spring. The ice displays attracted many persons to the Olympic during the showing. The Crab Apple Restaurant of Bellevue, Wash., because of the spectacular ice artistry of its sculpturing chef won the gold award. The Rainier Club of Seattle received the grand prize for its chef's contribution, and the Olympic Hotel's own chef, the sweepstakes award for his ice art.

The gold award winner, however, the entry of the Crab Apple Restaurant of Bellevue, from the deft hands of Wilmar Morgan, its chef and ice sculptor, was the cynosure of all eyes and won the admiration of throngs. Morgan had a crab-apple tree bough (the crab-apple tree itself being in the front yard of the distinctive restaurant) frozen in the clear block of ice—a single, huge crab-apple with twig and leaves attached being carved from ice realistically and colored—a masterpiece, and triumph of ice as a medium for modern artistic expression.

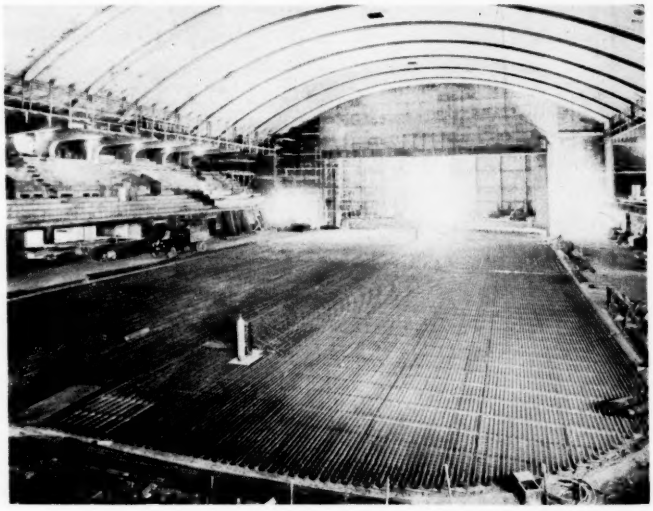
Ice Company Sells Reservoir At End of Fifty-Year Lease

SALE of Vernor Lake to the City of Olney, Ill., has been announced by The Ebner Ice & Fuel Co., Vincennes, Ind. The sale brings to a close a fifty-year period in which the ice company and their predecessors dating back to the time of Edward Wilson have played an important part in supplying the city of Olney with water service.

In 1901 Mr. Wilson entered into a contract with the City of Olney in which he agreed to erect a dam and road embankment at his own expense to convert a portion of his land north of Olney into a reservoir, and to lease this property to the city at a very low rental. In return the city agreed to pipe water to his ice plant for a period of fifty years. He also agreed that the city would have the right to purchase the reservoir at the end of the fifty-year lease arrangement.

Mayor E. G. Miller served notice early in February of the city's desire to exercise its option on William Glover, president of the Ebner Ice & Cold Storage Co., and on February 15 the arrangement was consummated that brings under city ownership the reservoir which was erected fifty years ago.

Skating Rink Uses 42 Tons of Wrought Iron Pipe



It took 42 tons of one-inch wrought iron pipe to ensure a uniform freezing surface for the ice skating rink at Onodaga County War Memorial Auditorium, Syracuse, N. Y. The rink, which will be used for sports events, ice shows and public skating, measures 85 by 195 feet. Seating facilities will accommodate approximately 7,000 persons.

Practical Refrigerating Engineer

NATIONAL ASSOCIATION PRACTICAL REFRIGERATING ENGINEERS

J. Leo Vivien, New Orleans, La.
Second Vice-president
National Association of
Practical Refrigerating Engineers

NEWS

OPERATING

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QUESTIONS -- ANSWERS

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Chicago 44 • Illinois

Public Relations Possibilities in the Refrigeration Plant

CHAS. W. BURNS,
Chief Engineer
Clover Farms Dairy Co.
Memphis, Tenn.

MY SUBJECT is "Public Relation Possibilities in the Refrigeration Plant". Perhaps my experience in the dairy industry may lend itself to your business in some small way with the idea that collectively we can do a better job of selling the necessity of good refrigeration to the public. Since my many years have been spent in the refrigeration plant of the Clover Farm Dairy Company here in Memphis, I will tell you how we engineers can assist our companies in building public relations which in turn means more customers and more sales.

In order to have you understand my reasoning in developing an approach to the subject, insofar as the milk and ice cream business is concerned, it is necessary that I take you to the farm where milk is produced. Thanks to modern refrigerating coolers which have taken the place of primitive methods such as the use of cellars or caves to cool the warm milk from the cow. These modern coolers prevent the developing of bacteria until the product reaches the plant. With the growth of cities, production on the farm is continually being extended farther away from the marketing area.

Handling Facilities

Improved facilities such as receiving and cooling stations are becoming more necessary and insulated tank trucks are used to transport the cooled milk to city plants. Quality of milk can never be better than when it comes from the cow, but proper handling can retain its original status. Refrigeration is the all important necessity to accomplish this. When the milk reaches the city plant either in cans or tanks it is then necessary to be sure that it is properly pasteurized and cooled before it is bottled. At this point I should like to tell you what we are doing to improve public relations, or in other words, impressing upon the public that we are doing everything to produce the highest quality possible.

All of us should know the details of these processes which provide Grade A pasteurized milk for the city consumers. It is not true, however, that the public in general has this information. Present methods of handling and processing milk are a relatively recent development. The Grade A standards were adopted only a few years ago and actually the current methods of processing and distribution have been developed during the life time of most of us present in this room.

For instance, many of you can remember when the milk delivery wagon contained a large tank from which milk was drawn into open metal measuring cups. Then it was carried into the house and emptied into whatever container the housewife had available. Pasteurizing was not generally used—in fact there were many people who thought they did not want pasteurized milk because they did not understand the process and what it accomplished. We might add that the uninsulated ice boxes of that day also left much to be desired in the preservation of milk and other foods placed in them.

It may be difficult to realize that the dairy processes we take for granted are not common in other countries —in fact they are quite unusual. Perhaps some of you read in the report of the NAPRE Round-Up at St. Louis last year how the United Nations International Children's Emergency Fund enlisted the aid of the U. S. experts to set up dairy plants in Europe to provide healthful milk supplies for children in a number of countries. The speaker, Ralph Copp, who was Senior Consultant for the Dairy Branch of this UN organization described the primitive facilities he found in use in several countries for processing and furnishing milk to

An N.A.P.R.E. Convention paper.

the citizens. The United Nations organization had reached the conclusion that recovery in these European countries would be speeded considerably and disease, especially among children, would be checked if thoroughly reliable milk supplies were made available.

Not so long ago a visitor from England told a story which in a humorous way illustrates this point. His family was engaged in the manufacture of pottery products. One of the men in the plant developed a special gadget which the English visitor described as follows: "It was a small little screen to be applied to the milk jug so that the milk could be poured out but the flies could not enter the jug."

The sales department, he said, anticipated a good sale for this appliance in the United States. But when they took the matter up with a large retail organization the reply came back—"We don't need it—there are no flies in America."

It might be easier to conclude the discussion in this manner than to go into a lengthy explanation of distribution methods in the United States. On the other hand, there are many consumers in this country who do not understand the elaborate care and processing used to give them Grade A milk.

Sanitation

For instance, they frequently observe empty bottles waiting for pick-up and notice that these bottles are not particularly clean. They do rely on the dairy plant to thoroughly clean all containers and sterilize them before they are filled with milk. They are not familiar, however, with the elaborate machinery and careful operation which the modern dairy uses to clean and sterilize milk bottles. A visit to the dairy plant gives them much additional information.

The same situation exists in relation to pasteurizing and homogenizing. Practically all city dwellers insist on pasteurized milk but not very many of them know what elaborate equipment is used to pasteurize milk and give a complete result without any change in the flavor. The number who understand homogenizing is even smaller. It is a simple process to present and explain when visitors are in the plant. When they do understand it they have greater appreciation of the careful processing provided by the dairy.

There is better understanding of the sanitation requirements and the need for refrigeration. A visit to the plant, however, will give the milk consumer a better idea of the clean conditions maintained in the plant and equipment. The manner of producing refrigeration in the plant is also interesting to the visitors and they learn much more about the different kinds of equipment used to refrigerate milk. From all this it is apparent that public relations and customer good will can be developed by inviting the public to visit the plant and by providing information for the people during their visit.

Refrigeration

Over a period of years thousands and thousands of school children, medical students and the general public have visited our plant. Naturally the bottling operation and the making of ice cream seem to attract the most attention. However when the refrigeration plant is visited, then I have a chance to tell my story. It is a story which proves the importance of my department. If the equipment and machinery under my supervision is not operating perfectly, then the other operations which they have seen would be impossible. By telling the necessity of good refrigeration and showing how each piece of machinery plays its part one can readily see that a refrigeration plant must be kept running perfectly in order to produce the best bottle of milk and the best ice cream possible. A clean appearance is most essential to prove this point. I have tried to glamorize my department to make a good impression. Placards such as these have been placed on the various machines:

Placards Tell Story

Vilter Compressor—75 Ttons

I'M BIG BOY

I am 30 years old. When the boss wants Btu's chased out in a hurry, he always calls on me. They run from me like a Jap runs from Jimmy Doolittle. I cool SEALTEST milk.

York Compressor—60 Tons

I'M LITTLE BROTHER

I am only 10 years old but I do a good job of cooling SEALTEST milk.

York Compressor—35 Tons

I'M BABY

But I do a good job of freezing SEALTEST Ice Cream. I work while the Boss sleeps.

Steam Driver—35 Tons

I'M OLD TIMER

I am 51 years old but still going strong. The boss can always depend on me to freeze SEALTEST Ice Cream.

Water Pump

I'M THE WATER BOY

I carry all the water required to keep SEALTEST equipment clean and sanitary.

Switchboard

I'M POWER

I furnish all the power for SEALTEST equipment but touch me not for I am also "Death".

Boiler

WE ARE THE DADDY OF THE WHOLE WORKS

We furnish steam to pasteurize SEALTEST PRODUCTS. We'll soon be 31. They just can't get along without us.

If you have the time, I will be most happy to have you visit us—a cordial welcome is extended.

Better Public Relations

The dairy plant and our plant in particular, have been used as an example to show how better public relations can be developed by inviting the public to inspect the plant and by using the visit to explain what goes on in the plant. Our plant has been used for illustration because we are most familiar with it. But it is our opinion that most other food plants could use the same general procedure to build good will and improve public relations in general.

For example, many of you have been in apple rooms in cold storage plants. You know how the very pleasant aroma of apples makes you want to go out and buy a sack right away. Of course the cold storage man wants to maintain constant temperature in his apple rooms so too frequent inspection by visitors might be a problem. I believe it would be possible to work out some procedure so that the public which buys the food protected in cold storage plants could know more about what goes on there. I am sure it would widen the market for cold storage products.

Many ice plants encourage visitors to inspect the plant but more of them probably could encourage this form of public relations building. This is also true of other types of plants operated by our members. Most of us have plenty to do in our ordinary work but I believe we should be happy to show our plants and equipment to the public at proper times. When we do we should take a sincere interest in the project and do everything we can to explain and make the visitors understand the basic facts about the plant and its processes. In this way we are promoting the business which provides us with our living.

N A P R E

Question Box

H. G. Venemann, Professor of Refrigeration, Purdue University and chairman of NAPRE Educational Committee, answers members operating problems monthly in this column. Send questions to Chairman H. G. Venemann c/o Purdue University, West Lafayette, Indiana.

Noisy Check Valve

Question No. 913: We have installed automatic control on a 7½ x 7½ compressor that takes care of a locker room and an ice cream hardening room. The compressor is driven at about 200 rpm by a 25 hp motor. The compressor has ring plate valves and must be unloaded to start. We installed a check valve in the 2 in. discharge line, the valve being in a horizontal line about three feet from the compressor. The compressor discharges into a 3 in. line and another compressor that runs on the ice tank discharges into the same 3 in. line about twenty feet from the first compressor.

When both compressors operate, the check valve seems to do quite a bit of chattering, it makes considerable noise. The engineers of the company that sold us the valve say that all check valves make more or less noise and that the valve will stand up. It seems to me that the valve would soon hammer itself to pieces. When the compressor on the ice tanks is off, the valve is pretty quiet. I placed a gage in the discharge line between the compressor and the check valve and the hand fluctuated about 10 lbs between strokes of the pistons. One person stated that a bull check would be more satisfactory. What do you think about it? We are using a solenoid valve in a line from the discharge to the suction side operated by a time relay, to unload the compressor.—J.N.

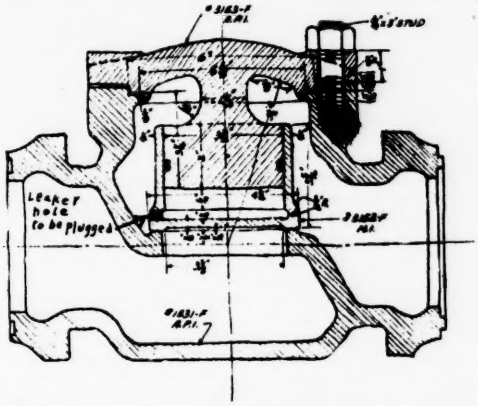

Diagram of 4 in. horizontal ammonia check valve, Y pattern.

ANSWER: The hookup as described in your letter is correct; it would not cause the check to be noisy as far as the connections go. In this case it is the valve alone causing all the noise making. There are, I am sorry to say, very few check valves that will operate quietly under all conditions. This will happen regardless of condensing pressure, they will be both noisy and quiet when operating from 90 pounds and up. The greatest percentage of check valves are of a piston-type, that is the button is a cylinder floating up and down on a piston. There may be a piston ring in the piston which may be worn and should be replaced. If the pistons are not too loose there is a small leaker hole for equalizing the gas between the piston and the floating seat. Try plugging this hole as this sometimes gives the correct answer.

The slower the compressor operates the noisier the check valve may be. We have found that a noisy valve taken out of a line where the compressor operates 160 to 400 rpm will operate very quietly in the line where the new multi-cylinder compressor operates at 720 or higher speeds. This is because of the shorter time between pulses or cylinder discharge. The fast pulsation keeps the piston floating along. While the slower action has enough time for the cylinder to fall on the seat, which causes the flapping or chattering noise. As far as the valve breaking to pieces, I would not worry about it, although the noise seems to indicate a greater pressure than the ten pounds which you have checked between the compressor side and the condensing side of the valve. We must admit the noise is a nuisance. The above diagram of a check valve shows the mechanics of the valve.—EUGENE RYTLEWSKI

Water Flow Through Condensing Units

Question No. 914: Sometime ago I installed a self-contained condensing unit using a water cooled condenser on an ammonia system. I hooked the water up to go through the condenser first then through the machine-cooling head. Recently the condenser needed retubing and the engineer doing it said the water was hooked up wrong. Who is right in this case? Will the scale form on the cooling head less readily by having the water go through the condenser first or by having the cold water enter the head first? This machine has a pressure operated water valve so the water would be heated some before leaving the machine head even if the cold water were introduced there. The water forms a hard scale at this plant. —T.C.

ANSWER: Most manufacturers of self contained units run the condensing water through the condenser first and then through the compressor jacket. When all of the water passes through both the condenser and jacket in series about 90 percent of the temperature rise in the water takes place in the condenser and the other 10 percent in the jacket.

In other words if the water rate is regulated to give a 15 degree temperature difference between inlet to condenser and outlet to sewer about 13.5 degree rise will take place in the condenser and 1.5 degree rise will take place in the jacket. So you see that it would not make a great deal of difference so far as the scale is concerned whether the water is run through the jacket first or through the condenser first. In either case the final temperature of the bulk of the water is not high enough to precipitate scale, and in either case it will form most quickly where the ammonia gas is the hottest. This, of course, is around the head of the compressor. —H. G. VENEMANN

N.A.P.R.E. Department

Insulation Problems

Question No. 915: Recently in Singapore I came across some peculiar insulation problems and would like to have some practical recommendations for their remedy. As you know, Singapore is situated near the equator and also surrounded by sea. The relative humidity of this place is very high and may be anything up to 70 or 80 percent sometimes.

A few days ago I was called upon a ship and found that surrounding the cold storage door, lots of moisture had condensed. By some strange similarity I found that our new G.E.C. refrigerator (manufactured in England) is also giving the same trouble. When this happened, the relative humidity was very high, as it had been raining continuously for three or four days. The insulation in the ship cold storage room was mainly of fibre glass of about 8 inch thickness and in the G.E.C. refrigerator, I presume, ¾ inch thickness of cork. After the rain stopped and the relative humidity had decreased, all was normal. I must state that these troubles are not universal with all refrigerators and cold stores. What do you think is the best remedy to get rid of these temporary troubles which never exceed more than four or five days at a stretch? P. K. Sarkar, Mem. NAPRE. Box 669, Singapore, Malaya.

ANSWER: Since this question was written, Mr. Sarkar has informed me that the G.E.C. refrigerator is insulated with 3 inches of fibre glass. He is especially interested in knowing whether this occasional moisture formation around the doors can be prevented without renewing the insulation and also whether it is injurious to the cabinets or cold storage rooms in the long run.

It is quite natural for moisture to collect around the edges of cold storage doors and under certain conditions to freeze there. In the latter case we avoid the troubles experienced with freezing by using overlapping doors, or by using double doors or by building an ante room around the door.

I do not believe that the insulation is permanently injured by this moisture even if it penetrates for a few days at a time and subsequently dries out. If the insulation within the door is properly contained within a sealed vapor barrier it might not even get wet. This is true also of the side walls, floor and ceiling insulation.—H. G. VENEMANN

New Questions

American Absorption System

Question No. 916: I should like to know why the American absorption system is not used, being so economical in operation in the production of ice when there are so many cheap sources of heat, (such as saw dust, steam exhaust, and other cheap materials), besides the less power required to produce the ice or refrigeration? — DR. JUAN ANTON, Santa Clara, Cuba.

Mixed Brine Reading

Question No. 917: It will be appreciated if you could help me with a problem to which I cannot find the answer. The problem in question is on an ice plant worked by an ammona compressor (Frick). When the plant was first installed the initial brine charge was made with calcium chloride to correct strength but subsequently owing to the scarcity of calcium chloride and its high cost when available, the owners of this plant added common salt (sodium chloride).

Now I find that there is still a formation of ice on the evaporator coils even though the strength of the mixed brine reads 1.160 specific gravity at 60 F. I find from tables of these solutions that calcium chloride at this hydrometer reading freezes at 3 F and sodium chloride at this reading freezes at minus 3 F. The percentage of sodium chloride used in comparison to calcium chloride is roughly 20 percent. The suction pressure (average) is approximately 16 lbs pressure, but the brine will not come below a temperature of 19 F; this I think is due to the formation of ice on the coils acting as an insulator.

Please let me know how I should take this reading? In addition, there is a suspected leak of ammonia in the evaporator oils. What test would you suggest making on the brine to be certain of this. You should bear in mind that there is a mixture of sodium chloride and calcium brine in varying percentage. It is also pointed out that no dichromate has been used. —RALPH B. WYLDE, Trichinopoly, South India.

Use of Electricity

Question No. 918: We should like to have your opinion as to whether our electrical consumption to make a ton of ice is reasonable or otherwise. We have frequently read that the average ice plant in your country uses approximately 38 kilowatt hours to make a ton of ice but it has never been clear whether this figure covers all the electrical energy used in all the electrical equipment usually associated with an ice manufacturing plant. Our consumption averages 76 kw-hrs but this covers everything—200 ton daily store, 400 ton long term store, high pressure air agitation etc. In addition, the actual weight of water we freeze in the cans, to get a ton of ice after dipping and handling, is 2,200 lbs. The operating temperature in our tank is usually 10 F but we willingly accept this higher cost to get the added plus production from a small-than-ideal size of tank. Since 38 kw-hrs is just half our figure of 76 kw-hrs, you can understand our curiosity on this matter and we would, indeed value your comments. —J. A. BOELL, JR., Victoria, Australia.

Correction to Answer Question 910

IN THE answer to question 910 in the March issue, the tonnage figure of 165 should read 65, and 189 should be 89. These corrections should be made in the 5th, 8th and 12th lines of the first paragraph; and in the 5th line of the second paragraph. Wherever the figure 165 appears, it should be 65 and wherever the figure 189 appears it should be 89.

William S. Baker

IN THE death of Wm. S. Baker of Fort Worth, Texas, last January, industry lost a man who had devoted virtually a lifetime to the improvement of mechanical efficiency through progress in piston ring design. At the time of his death at the age of 74, Mr. Baker was still actively working in the business he founded, the Safety Seal Piston Ring Company which he served as chief engineer.

Mr. Baker started his engineering career as an erection engineer and later became a railway master mechanic. In 1918 he went into the piston ring manufacturing business. During the past 34 years he has been responsible for the invention and development of four major improvements in piston rings for industrial applications, including the first practical one-piece sealing ring. Another Baker development was the first commercially practical refrigeration air-conditioning unit for automobiles, which is being manufactured now by a firm in Fort Worth.

A year before he died, Mr. Baker established his own manufacturing business, the Safety Seal Piston Ring Company located in Fort Worth,

Texas, which is now being operated by his sons, Weldon Baker and Don Baker. At the time of his death he was serving on the Membership Committee of the NAPRE in the southwestern territory.

News Notes and Chapter Activities

New Orleans

LEO VIVIEN

THE newly elected officers for 1952 were installed at the first January meeting. Walter Cooke, installing officer, delivered an inspiring talk on the work and aims of N.A.P.R.E. Mr. Cooke installed each officer and eulogized these men for their efforts in the past. Newly installed President B. Mancuso assured the members of his interest and promised a constructive program for the year. The retiring President L. Howat thanked the officers who had served with him and the various committee chairmen for their cooperation during the year, and rendered a report of his stewardship. Past President Howat was presented with a watch by the members in appreciation of his efforts in their behalf. President Mancuso was also presented a brief case in appreciation for the work he did as instructor for the Chapter during the past year. A buffet party completed the meeting.

Officers and committee chairmen New Orleans Chapter. Seated: F. Chase, L. Vivien, M. Mancuso, President B. Mancuso, J. Chaisson, George Whitman, E. Orth. Standing: L. Howat, J. Prager, D. Fischer, J. Vernaci, W. Cooke, M. Olivier, F. Gillio, M. Sutherland.

Retiring President Howat presents gavel to incoming president, B. Mancuso.

At the second January meeting the Chapter began the instructions on the Refrigeration Course offered by the National Association. Frank Chase, Educational Chairman, secured the services of Professor A. M. Hill, Head of Mechanical Engineering at Tulane University, to conduct this course. Advance publicity and enthusiasm brought out over 100 members to hear Professor Hill. They were not disappointed. The Professor knows how to impart the information for a group such as ours, and we look forward to a good year.

The sad news of the death of Emerson Brandt was announced at this meeting, and many members were shocked by the loss of such a good friend. A prayer was offered in his behalf.

At the two meetings in February, the regular order of business was transformed in order that the course could be conducted between the hour of 8 and 9. This was done because some companies are letting their engineers off duty so that they may benefit by the instruction of Professor Hill. The meetings are well attended, and efforts are expended at present to obtain new members before the course becomes too advanced.

Colton

H. O. BONTER

A SHORT report from H. O. Bonter who is at home again after a long siege in the hospital tells about their first February meeting. At this meeting H. J. Medvall of Armstrong Cork Company gave a talk on the history of the cork industry and the great many uses of cork. It was a very interesting subject and all of the members and guests enjoyed the discussion. Mr. Medvall was accompanied by Mr. Sweet also of the Armstrong Company and Mr. Murphy of the Warren-Bailey Co., Los Angeles.

L. G. Schroeder, plant manager for the Pacific Fruit Express Co., at Colton was appointed educational instructor for the chapter.

At our March 12 meeting the chapter members and friends had a very interesting evening. The wives were invited to join the group in an inspection tour through the Crane-Pacific Sanitary Manufacturing Plant at Colton. A trip through this plant reminds one of going through an automobile assembly plant, since every operation is done on a conveyor chain. The molds move by the men as they prepare the different parts for the molding of the articles they manufacture which are toilet bowls, tanks and wash basins. These are made of blended clays imported from England. Some of these fixtures are molded in sections and then they are assembled by hand. After several inspections and tests the fixtures are sprayed for glazing in different colors. Then they pass through the firing ovens which takes approximately 48 hours. When they come out the other end of the ovens they are beautifully glazed in white, tan and blue.

This plant has been in operation one year and employs about 225 at present. Plans are being made to enlarge the plant to manufacture bathtubs, etc. The buildings are very attractive in appearance and cover a large area.

After the group finished the plant inspection they adjourned to the Purkiss residence where a very enjoyable evening was spent. The women visited and enjoyed television while the men held a meeting and then they all joined in for an informal lunch of doughnuts, coffee and cakes.

Memphis

CHARLES CONLEY

AT THE first meeting in March H. L. Todd the chapter's educational instructor continued the study of the King Refrigeration Course. He explained the various types of containers the different refrigerants are shipped in, the precautions to be taken in drawing the refrigerants from systems, the storing and handling of refrigerants and the various types of expansion valves along with high and low pressure type floats and the different types of evaporators. At the previous meeting his lecture dealt with the various refrigerants. The interest in the new Refrigeration Course continues, in fact it gains in momentum at each succeeding meeting.

The following new members were welcomed to membership at recent meetings—J. L. Barron, assistant engineer, Humko Refinery, Charles H. Thompson, chief engineer, Grennan Bakeries, Wm. E. Hinton and John E. Campbell both of the Simpson Engineering Co. and Bernard R. Mullins, Sr., assistant engineer Memphis Cold Storage Warehouse Co. Wm. L. Parker, Jr., a former member was reinstated to membership.

Los Angeles

FRED HERR

A WEALTH of timely advice on electrical servicing in the air conditioning industry and information on design, operation and maintenance of motors was given at the March 5 meeting of Los Angeles NAPRE Chapter by E. V. Lawrence, maintenance engineer, and John Reed, application engineer, of Westinghouse Electric Corporation.

The main talk, chiefly in the form of explanatory comment for various slides depicting motors, mounts, bases, controls and mechanical detail, was given by Mr. Read, while Mr. Lawrence collaborated in answering questions posed by the members.

In his introductory remarks, Mr. Lawrence said that maintenance of electrical motors is becoming an increasingly important factor in industry. Declaring that while the selection of motors today is based on established standards of designated efficiency factors developed from long experience, he pointed out that the plant engineer can nevertheless wield a valuable influence by assuring that the right motors for the right jobs are used and proper maintenance programs are conducted to obtain the life span and operating efficiency the motor is designed for.

Mr. Read followed with a discussion on motors designed for specific applications. Although his talk emphasized motors designed for air conditioning equipment, he explained that the same principles, in the main, apply to motors for other purposes.

His presentation was divided into three parts: A discussion of motor characteristics; a film showing different types of motors through blue prints and views of installations; and general information on Westinghouse motors.

Standardization of parts, he said, has reduced the problem of electric motor maintenance. Standardization, according to the speaker, has made it possible to standardize pistons and horsepower. Bolt holes, shafts, etc., he said, are now of the same size, which makes for easy installation and economic maintenance.

On illuminated slides, he pointed out the characteristics of various types of enclosed motors, such as drip proof, splash proof and totally enclosed.

"A motor," he said in summarization, "is only as good as its power supply. You must watch voltage and keep it near the rated voltage of the motor."

Forty-five members and guests were present when President Edgar M. Marrs called the business session to order. Among the guests was A. Averell Cole of Chicago, field representative of Preco, Inc., Los Angeles refrigeration equipment manufacturers.

The re-instatement applications of William L. Rideout and Marion May, the latter of Bakersfield, Calif., and former president of Watsonville, Calif., NAPRE Chapter, were approved.

Ed L. Nelson, chairman of entertainment, again came through with a surprise community sing program. Nimble-fingered and versatile Miss Irma Vai performed at the piano and likewise carried the brunt of the melody when the gravel-voiced refrigeration engineers found the going a bit tough in the higher registers.

A half dozen old-time favorite melodies were given the works, and Ed Nelson even provided the 1908 Nickle Odeon touch by having the lyrics projected on a screen.

Frank Eccleston, California Consumers Corp., Los Angeles, chairman of Los Angeles NAPRE Chapter's 1952 Golf Tournament Committee. He's "The Man to Beat" in the 1952 tournament on May 25, since he won the 1951 play with a gross score of 82 and a net of 70.

Bill Losch's voice, more accustomed to talking about ammonia, Freon and Frick refrigeration machines, soared to truly noble heights while the crowd was "Wondering Who's Kissing Her Now"? Rudi Kettler hit all the scales flawlessly (no plug for Fairbanks) while the "Weeping Willow Tree" was getting a trimming. The "Beer Barrel Polka" was right down Joe Mai's alley and he gave it the old college try. But it was on "My Wild Irish Rose" and "Sweet Adeline" that Ray Burnett, George Paulick, Regis Gubser and Ed Marrs really demonstrated their early training in barbershop quartettes. The rendition of "Farmer in the Dell" was so enthusiastically robust that the plaque which the chapter won in the 1950 national membership drive was almost shaken from the wall. The fifteen minute interlude of uninhibited vocalizing demonstrated that while the chapter apparently has no Lawrence Tibbetts or Nelson Eddys among the membership, it does have an Eddy Nelson who knows how to generate meeting attendance with surprise entertainment programs.

Membership chairman W. R. Burnett outlined the campaign setup devised by National Chairman Howard Peterson which assigns Los Angeles chapter to a group effort along with Fresno, Colton, Bakersfield and Phoenix chapters. Burnett proposed immediate action to generate collaborative activity for getting new members by the five chapters aligned in the group.

More than half of the 12 new members gained thus far in 1952 have borne the signature of Donald Byl as the signer, which prompted one member to inquire with dead-pan expression: "I would like to inquire if our membership blanks are printed with the name of Byl as the signer?"

In recognition of his competent handling of the 1951 golf tournament, Frank Eccleston of the California Consumers Corporation had, at the previous meeting, been named chairman of the 1952 golf play. He reported that arrangements have been completed for staging this year's play on Sunday, May 25 at the Montebello Public Golf Course, Montebellow, Calif., scene of the 1951 event. An effort will be made, Eccleston reported, to obtain at least 30 participants, 12 more than teed off last year. Green fees have been set at the nominal sum of $3.00.

Emmett T. Quinn again agreed to contribute one of the trophies, in addition to which three others will be provided by the committee. The selection of Eccleston as golf tournament chairman was quite appropriate, for he was the winner in 1951 with a gross score of 82 and a net of 70 strokes. He's the man the rest of the crowd will be gunning for on May 25.

George Paulick, 1951 president, was presented with a combination radio and clock in recognition of his competent job as head of the Chapter last year.

The educational phase of the February 20 meeting was featured by a talk on "Design and Operation of High Speed Compressors" by Ralph E. Manns of the Ralph E. Manns Company, Wilmington, Calif.

The speaker compared old time equipment of the past 50 years to the equipment being produced today. He showed that while the actual lineal feet per minute of piston travel has remained approximately the same through the years, the size has decreased and the number of cylinders has increased. Modern automobile engine building practices, Mr. Mann declared, are being used in construction of refrigeration compressors.

"We think in terms of piston speed when we talk of compressors today," Mr. Mann said. "In many ways, the old machines are faster than our high-speed units of today. When we talk of high-speed compressors, we are not talking of any new machine, but merely units of a different design."

He pointed out that there are materials available today that could not be used years ago, as a result of which there are now compressors which surpass the old horizontal and vertical acting machines.

Mr. Mann cited the advantages of multi-cycle compressors to be:

1—Compact design requires less floor space, as too much floor space was always the problem with the big horizontal machines.

2—Proper balance for high-speed operation. The parts have uniform weight.

3—Lower first cost because of greater quantity production.

4—Less cost for foundation because static, dynamic and pressure balance is better than in the old machines. The modern high-speed compressor is vibration-free.

5—Minimum weight, which means less freight and installation cost. Motor and machine are factory assembled on a steel base.

6—Lower cost of controls because most of them are built-in control devices.

7—Factory mounted control switches are provided, as well as capacity control switches which are factory mounted and connected. Piping and insulation are already installed.

President Marrs inducted five new members at the February 20 meeting. Secretary Byl read a letter from Tennessee Chapter No. 1 (Memphis) in which the southerners suggested that the 1952 Operating Manual be dedicated as a memorial to the late Emerson Brandt. Emmet T. Quinn, past-national president and for a decade, national treasurer, declared that while the Memphis proposal had undoubted merit, he believed Los Angeles Chapter should do something still more substantial. He suggested that a Brandt Memorial Membership Trophy plan be set up as an appropriate way in which to memorialize Emerson's activities for 5,000 members in 1952. The fund for this proposal was given a good start when Herbert N. Royden donated the cash door prize he had won at the meeting.

Finance Committee Chairman William F. Losch presented his annual report. It revealed that the chapter is healthy financially with all bills paid.

The membership was advised, through a letter from Murray A. Jewell, instructor at the Los Angeles Trade & Technical School, that there is now being offered (it started February 2) a course in steam engineering and operation designed to improve the quality and knowledge of men in the industry.

Rio Grande Valley

ARMIN DONEIS

THE Rio Grande Valley Chapter of NAPRE held a joint meeting February 5 with the Refrigeration & Air Conditioning Servicemen's Association in Weslaco High School Auditorium to hear a discussion and see a demonstration of the qualities of the numerous types of Freon refrigerant. The lecture was presented by D. D. Merrill of the Du Pont Co., and was sponsored by Mr. Ralph Kierr, distributor of the Westbrook Co. of San Antonio.

Mr. Merrill dwelt at some length on the safety and nontoxic qualities of the Freons. To demonstrate his point he exposed foodstuffs and delicate fabrics and furs to direct contact with the vapor and liquid, and proved their safe unharmed survival after the contact. With the use of a slide projector the chemical composition of the various Freons was made clear, and their temperature and pressure ranges were indicated. During the ensuing Question Period it was asked whether, because of the high degree of heat developed in an electric arc inside a sealed compressor-motor due to a fault, a dangerous decomposition of Freons into Hydrofluoric Acid could not occur. It was admitted that care should be used in cleaning out any such system where these conditions might have existed.

The fifty or more participants in the meeting expressed their appreciation for the talk and demonstration, and indicated their interest by a sustained discussion, using the speaker's remarks as a springboard for further helpful interchange of ideas and experience, both with the Freons and other refrigerants.

Instructor John Muller thanked Mr. Merrill and Mr. Kierr, and then explained briefly to those assembled the nature of the work of NAPRE and the Rio Grande Valley Chapter, and invited non-members to visit future meetings frequently.

The meeting of February 19 was presided over by Vice-president Doneis in the absence of President Musch. A discussion as to the best procedure in attracting the non-members present at the previous meeting brought out numerous approaches that could be employed. At the request of the vice-president, Treasurer Calvin Burg gave a summary financial report which showed a comfortable state of solvency for the Chapter.

Instructor John Muller took over the instruction period and carried on the discussion of the relative advantages of various refrigerants where it had been dropped at the previous meeting. It was agreed that for general safety the Freons served admirably, but the pungent odor, the low cost, and the high latent heat of Ammonia were very definite advantages where large installations were under consideration. Instances were related where large leaks of Freon had gone unnoticed and undetected for considerable periods of time, allowing a costly loss, in contrast to Ammonia with its characteristic odor which immediately warns of a leak. Instructor Muller then concluded the study of Chapter 1 of the King Refrigeration Course.

He then introduced Mr. Rayboone, service engineer of the General Electric Co. who discussed the possible causes of fluctuating load current of a synchronous motor which caused a periodic and rhythmic swing of 30 amperes fluctuation. He mentioned the the possibility that under certain load conditions the motor might be slipping poles because one or more field-pole coils may have been cut out of the circuit, thus decreasing the pull-out torque. A discussion of motor control switches and winding faults ensued.

At the meeting of March 4, lubricants and lubrication came up for discussion and branched off into an evaluation of the use of oil-reclamation equipment such as filters using Fullers earth. Mr. Casberg expressed the opinion that properly sized Fullers Earth is very superior to any which comes in particles of random sizes.

One member reported having considerable difficulty in the rebabbitting of an outboard bearing on a 9x9 ammonia compressor. In spite of his best efforts and care in preparation and alignment, the bearing heated excessively. The babbit had been poured with the pedestal bearing in place on the shaft, and the point was brought out that possibly insufficient clearance was allowed for the oil film. Mr. Casberg expressed the suspicion that possibly the placement of oil grooves was faulty. R. A. O'Neill of Corpus Christi said that it was considered poor practice to pour babbit into a bearing with the shaft in place on any journal that has a diameter greater than three inches, or that operates at speeds exceeding 100 rpm. He said it was much more reliable procedure to pour the babbit around a mandrel of smaller diameter than the shaft, then to pour the bearing metal and bore to size on suitable boring machine. Numerous possible causes of misalignment were suggested, and the likelihood that the bearing was starving for lubrication was also raised.

Instructor John Muller had brought along an Indicator for the taking of pressure diagrams and he proceeded to explain the construction, operation, and use of such an instrument. Numerous indicator cards were exhibited and the interpretation of resulting diagrams was explained so that the characteristic card peculiarities could be recognized, analyzed and the probable trouble diagnosed. An interesting session followed when several members beside Mr. O'Neill related cases of sleuthing when the obscure cause of trouble was brought to light by use of an indicator and judicious appraisal of its revelations.

Chicago

WM. L. TIFFIN

THE second February meeting was held in the regular meeting place, the Chicago Engineers' Club. The educational program was handled by Leslie Clifford. The lecture began the section on evaporators. It was pointed out that there is an ideal rate of gas flow for each particular type refrigerant in order to obtain the best heat transfer. Other considerations involved with this same point are a carryover of liquid if the velocity is too high or if the velocity is too low the liquid will accumulate in the evaporator and suction trap. This trap of flow is controlled by the proper sizing of suction lines and of evaporator coils.

The speaker for the evening was E. L. Egner, head of the engineering department of the Borden Co., Chicago milk plants. He disclosed the qualities his company looked for in a good operator. Engineers in the Borden organization are retired at the age of 65 and within the next

few years a large number of men will be retiring. Mr. Egner stated there is still no solution as to where replacements will be obtained. The situation boils itself down to the fact that since the selection of men is somewhat limited, it is necessary to train the men they have. One member suggested that the solution to this problem was to set up plants on the basis of semi-pneumatic operation so that a lesser number of men is required to take care of operations.

The meeting was adjourned with the suggestion to Mr. Egner that he encourage his men to attend NAPRE meetings where they would have a chance to have their questions answered and learn more about becoming good operators.

Wm. V. Richards and R. R. Ross of H. A. Phillips & Co., were initiated at this meeting.

Stockton-Modesto

HARRY DYER

THE following officers were elected to lead the chapter during 1952:
President, Waino E. Minkkinen
Vice-president, Thomas Woods
Secretary, Harry C. Dyer
Sergeant-at-Arms, Ray Munoz

The meeting on March 3 was held at the Pacific Fruit Express Co., in Modesto. After the regular business had been taken care of C. C. Berkley started on the new Refrigeration Course. This new course is creating much interest among the members. Many interesting questions were asked and there was considerable lively discussion. The members were urged to tell their friends about this new course and to bring them to the meetings so they could take advantage of it.

National Membership Committee

MEMBERS of the National Membership Committee and the areas covered by each are announced as follows:

Howard H. Peterson, Chairman.
Milton Rambo, Eastern.
George Whitman, Southern.
Averill Cole, North Central.
Weldon Baker, Southwest.
Ray Burnett, Pacific Southwest.
Ray Toddhunter, Pacific Central.
Quaid Minich, Pacific Northwest.

Technicolor Ice

IT WASN'T pink elephants that had Berwick (Pa.) townspeople taking a second look the last few days. It was pink ice on the Susquehanna river. The technicolor ice formed along the east bank of the river and extended some distance out. The best solution to the puzzle seems to be that oil escaping from a clogged underwater pipe caused the coloring.

Don't Sell the N. A. P. R. E. Short

THE N.A.P.R.E. has so much to offer! All the members know the great worth of the new lecture course by Guy King. Section by section as the book is sent out we see its expanding value. Whether you are a member-at-large in some remote corner of the world or a member in one of our many chapters the same reliable information is continually being sent to you.

Not only do we have the Lecture Course but we have the N.A.P.R.E. Operating Data Book which is distributed annually to all members. Bulletins and other items are periodically distributed by the National Office. ICE AND REFRIGERATION is received monthly by every N.A.P.R.E. member.

We have so much for ourselves. Why not tell our buddy next door? Or in the next plant? At first he probably won't believe he can get so much for so little. At first he may feel he won't be able to get much out of the Course. That's where you come in!

TELL him about it. SHOW him that even without the benefit of group study there is every working tool he needs to improve his educational background and his judgment. With knowledge and experience we can conquer anything and it's fun!

Every day we're confronted with problems. When you see right through the difficulty, headaches are only a challenge. In fact you soon outsmart the problems and operation and management runs smoothly.

Not only that, the smart fellows are trying to find more information on the subject in which they are interested. Who is more interested in advancement than the fellow right next to you in your plant or the plant next door? He is looking forward to greater responsibility. He is trying to improve himself too, so that he can take home more of that "green stuff" each week. You must help him!

A friend of mine in a Southern city recently told me he doesn't hire a man for a position in his compressor room unless he shows that he is an active N.A.P.R.E. member. This plant manager has learned the value of N.A.P.R.E. trained men. He knows they will develop more reliable, efficient, and productive methods in his organization. Did you ever note that N.A.P.R.E. members practically without exception are the most ambitious men? They are men trying to do a better job—men who are succeeding. My friend observed that.

I am asking you—each one of you—a self appointed committee of one—to help the National Membership Committee and me put this job over. And the thing of it is that it's easy—nothing to it! We're not asking each of you to bring in five or ten new men. That might take a little special effort. No. All we are asking is that each of you go out and get ONE member! And that's not hard to do—in fact it's easy.

Think what that would mean to our association. It would double our membership! We'd be a part of a finer organization which in turn could get more invaluable information to us. Yes—we would be the winners!

A membership contest award will be announced soon. We are working toward a memorial to our departed National Secretary, Emerson Brandt who had such great visions for our association. Our goal for this year is 5000 members by October 15th, 1952. YOUR effort is needed now!

If your chapter Secretary hasn't sufficient application blanks, get in touch immediately with the National Office—N.A.P.R.E., 435 North Waller Ave., Chicago 44, Illinois. They also have promotional leaflets — "Opportunity Year For Refrigerating Engineers" and "The N.A.P.R.E. Services To Refrigerating Engineers."

As the foreman said to his miners, "Get the Lead out."

—HOWARD PETERSON

New Refrigeration Course Spurs Membership Drive

THAT the new Refrigeration Course by Guy King is creating more and more interest is evidenced by the constant increase in membership in all chapters. This increase began right after the Memphis Convention. The chapters are not waiting for the starting bell in the membership race this year.

This holds true in the member-at-large group. One mail brought in nine engineers from the Terminal Refrigerating & Warehousing Corp., Washtion, D. C. We are pleased to welcome to membership: Robert Bland, Luther Eastwood, Stanley Edwards, William Fitzgerald, W. L. Gray, Silas Jones, Forrest Kinna, George Knott and Robert Spence. To Walter E. Bernd, Sr. goes the credit for bringing in these men. We welcome the following from Tri-State Engineering & Sales, Inc., Salisbury, Md.; Paul Anderson, Marinus Coldike, George Milnes, Kenneth Parrott and Thomas Patterson.

Refrigerated Warehousing Industry

NATIONAL ASSOCIATION of REFRIGERATED WAREHOUSES

Division of American
Warehousemen's Association

Executive Offices
TOWER BUILDING, WASHINGTON 5, D. C.

Executive Vice-president
WM. DALTON, WASHINGTON, D. C.

Secretary
JOS. H. COLQUITT, WASHINGTON, D. C.

Director of Information
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Vice-president
A. B. EFROYMSON, CLEVELAND, OHIO

Treasurer
C. E. SIMMON, OKLAHOMA CITY, OKLA.

THIS MONTH IN BRIEF

Refrigeration warehousemen, for the first time, took an active part in the annual frozen foods convention held in Chicago March 3-7. A luncheon session sponsored by the warehousemen was followed by a panel discussion in which packers, brokers, wholesalers and distributors joined in comments on common industry problems.

A new refrigerated warehouse has been completed and is now open for business by The Merchants Refrigerating Company of New York, at Hopkins, Minn. It is completely modern with the newest ideas on freezing and storage.

Utilization of public cooler space declined during February but the decrease was not as great as might have been expected normally. Freezer occupancy remained about the same as that of January 31. The future outlook seems to indicate that both cooler and freezer occupancy will continue on their downward cycle.

Refrigerated Warehousemen Hold Luncheon Session at Frozen Foods Convention

THE interest of refrigerated warehouses in the frozen foods industry is indicated by the fact that this year for the first time warehousemen were invited to take an active part in the program of the National Frozen Food convention which was held at the Conrad Hilton Hotel, Chicago, March 3-7. This interest centered chiefly in "Operation Zero", a panel discussion sponsored by the National Association of Refrigerated Warehouses. A Dutch Treat luncheon was followed by a panel discussion of the entire field of frozen foods warehousing, held from 12:30 to 3:30 p.m. in the Boulevard Room of the hotel.

Jerry P. Johnson, president of the National Association of Refrigerated Warehouses presided. Moderator of the panel discussion was Harold G. Emerson of Bridgeton, N. J. Mr. Emerson is a member of the executive committee of N.A.R.W.

Panel Participants

Panel participants representing the warehousing industry were: J. J. Gallery, Watertown, Mass.; H. J. Nissen, Los Angeles, Calif.; L. J. Fisher, Jersey City, N. J., and H. C. Diehl, Colorado Springs, Colo. They were joined by L. A. Campbell, Mount Vernon, Wash., John Goldsmith, Fruitland, Md., packers; H. A. Greenberg, Atlanta, Ga. and W. Carlton Eacho, Washington, D. C. distributors.

Mr. Johnson explained the purpose of the meeting as that of arriving at a better understanding of their mutual problems by the frozen food packers, distributors. brokers, and the refrigerated warehousemen. As president of the N.A.R.W., he said he heartily approved of the idea of getting together for the purpose of considering their mutual problems and interests.

Repeating this sentiment, Mr. Emerson said that warehousemen are greatly interested in the frozen foods industry and they feel the need of a better understanding of their mutual problems. While he expected the discussion to bring out no panaceas, he did expect that it would throw light on many of the more pressing problems and point the way toward solution.

Members of the panel, in brief remarks, pointed out the desirability and the necessity of all segments of the industry working together. One of the problems comes from the fact that the frozen food industry has grown faster than cold storage facilities. One speaker pointed out that 75 percent of all foods are perishable and this provides a huge market for frozen foods.

One of the warehousemen on the panel admitted that there are many practices in the warehousing industry that are not defendable. However, he continued, the warehousing industry has a problem of costs and serious consideration of this factor by the frozen food people would be greatly appreciated. For instance, he said, a dozen packages can be handled almost as cheaply as one package, regularly scheduled pick-ups on time are needed and each additional service costs money which must be charged or come out of the warehouse's profits.

Package Design

One of the questions raised was in regard to a design of packages that will better fit the needs of distributors and warehousemen. This is being done in regard to size, shape and colored cartons. Pallet possibilities, it was pointed out, should be more adequately considered. Some packages can be handled on pallets and fork lift trucks, and others cannot. Warehousemen and distributors, it was

pointed out, are particularly adverse to square packages because of the difficulty of handling and stacking them. In this connection it was pointed out that there is definite need for standardized cases. It was suggested that packers need to recognize these needs of warehousemen and distributors and their failure to do so, quite often is due to a lack of knowledge as to what is needed.

Distributors questioned the practices of certain warehousemen in providing a delivery service. The warehouse viewpoint on this is that there is too much duplication by the distributors a number of them often covering the same territory.

The old question in the frozen food distributing industry was raised,—that of the warehouse making a delivery charge per lot to the distributor. The answer, according to one warehouseman, is that such charges are made because of the increasing demand for withdrawing small lots which are uneconomical from the warehouse standpoint, and these charges further are based on careful cost studies. It was pointed out that to withdraw an order from the warehouse involves some nine operations. Without such a charge, rates for storage would have to go up to the packers.

To expedite movements of frozen foods, it was suggested that they be "bundled" in packages of ten. This is already being done by some packers, and when done, expedites the movement of such packages. This, it was pointed out, counteracts a trend toward making smaller cartons in response to requests from the distributors.

Package Labeling

A criticism was offered by warehousemen that packages frequently are not distinctly labelled and in many cases the sides of the packages are so covered with display "ads" that it is almost impossible to mark a distinctive lot number or other labeling marks. This is one point, it was pointed out, on which the packer needed more information as to the needs of the warehouseman.

Answering a distributor's criticism that not enough warehouse space is available for frozen foods, statistics were presented which showed that in 1951 refrigerated space in the United States had been increased by 10 to 12 million cubic feet and during 1952 about the same amount will be added, according to a recent statement filed with the D.T.A. Further comment was added that if, and when, the need is proven for low-temperature refrigerated space, the warehousing industry will supply it, although new refrigerated warehousing space is very expensive and costs are constantly going up.

Frozen Food Council

From a California distributor came a suggestion that a frozen food council be organized with representatives from the packers, wholesalers, brokers and warehousemen to take up and determine answers for outstanding problems that affect the four branches of the industry. This project, he stated, was originally discussed in 1927, but had been deferred. He complained that they could go on discussing these problems and it was quite likely that nothing would ever be accomplished unless some formal action such as forming a frozen food council was taken.

U. S. Egg and Poultry Magazine Sold

THE U.S. Egg and Poultry Magazine, which has been published by the Institute of American Poultry Industries for more than 26 years, has been sold to the Watt Publishing Company at Mt. Morris, Ill. Starting with the June, 1952 issue, the magazine will be published by the Watt company.

Cliff D. Carpenter, president of the Institute, announced the sale following action by the Institute's board of directors during the Fact Finding Conference in Kansas City early in February. "The Institute is a non-profit trade association," commented Carpenter, "and in the opinion of the directors publishing a monthly trade magazine under today's condition can best be handled by an independent publishing company, and time and money formerly invested in the magazine can now be utilized for other activities and services that are making more and more demands on our work schedule."

"Naturally," Mr. Carpenter added, "the Institute is interested in seeing the U. S. Egg and Poultry Magazine continue to grow and serve the industry. The Watt Publishing Company shares this interest, and they are in a good position to carry on where we leave off."

The Institute first started publishing the U. S. Egg and Poultry Magazine in 1926. Previous to that date it had been published as the U. S. Egg Reporter since it was founded in 1895.

Government Spending Threatens U. S. Economy

OUR present program of heavy government expenditures and taxes is threatening the efficient performance and future growth of the American economy in at least ten respects:

1—The rapid depletion of our non-renewable resources is being encouraged.

2—A dubious allocation of some of our vital resources is taking place. For example, because of heavy foreign and military outlays, the rate of construction of modern highways and educational facilities is inevitably lagging.

3—Centralization of government powers and responsibilities is accelerating. Federal taxes are curtailing the sources of state and local revenues.

4—Incentives to work and to take risks are being undermined.

5—The ability and willingness to provide venture capital is being reduced.

6—In spite of the apparent post-war spurt in capital outlays, the rate of increase in capital formation and productivity is below long-term trends.

7—Monopoly and limitation of opportunity are fostered.

8—The low income groups are of necessity being forced to shoulder burdens of taxation known only in the days of the greatest despots.

9—Inevitable inflation and an accelerating loss of confidence in the value of our dollar is in process.

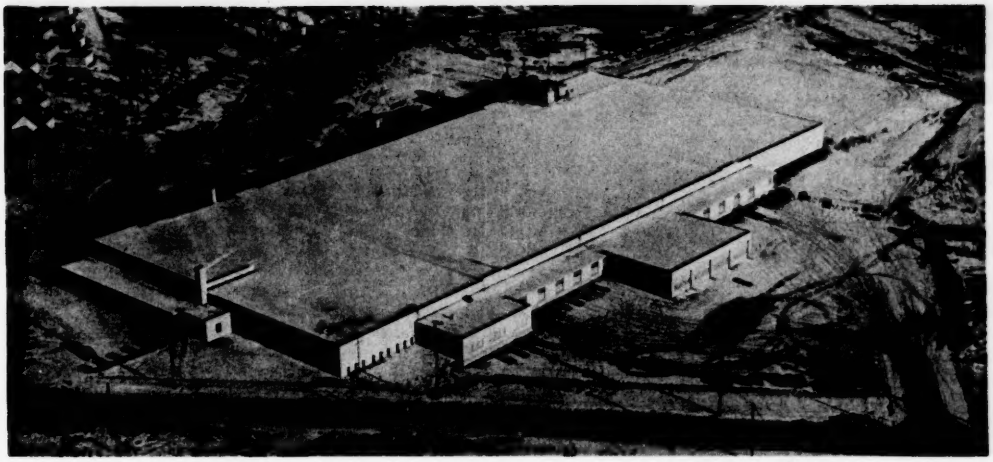
10—The growth of government and heavy government expenditures and taxes, along with the resultant inflationary consequences, are important causes in the decline of ethical standards.

This is the problem of American citizens in 1952—and maybe much longer. The outcome of it depends upon you.—NARW Cold Facts.

Poultry Service Award

FOR the first time in the poultry industry's history, an annual service award has been established for outstanding poultry and egg business men in recognition of "service to the industry above and beyond self gain." This award, a suitable plaque and parchment scroll, will be made by the Institute of American Poultry Industries. Nominations for the award will come from fifteen industry groups allied with the poultry industry.

The first award will be made at the Institute's Fact Finding Conference banquet in Kansas City Feb. 16, 1953.



New Refrigerated Warehouse Has Modern Freezing and Storage Facilities

Expanding into the middlewest, the Merchants Refrigerating Company of New York has constructed and now has in operation a large modern refrigerated warehouse at Hopkins, Minn. in the Twin Cities area. Covering almost three acres, on a 16-acre tract, the new warehouse has the size and equipment to provide a valuable storage and freezing service.

THE new ultra-modern plant of the Merchants Refrigerating Company, now in operation at Hopkins, Minn., makes use of the newest ideas in warehouse construction. It was opened for business December 17, 1951.

The new warehouse is built on a 16-acre tract of land. It is 540 feet long and 280 feet wide and covers approximately three acres of ground. The building is made of glazed tile. Approximately 2½ acres in front of the warehouse and tenant quarters have been paved for the handling of customer's trucks and parking facilities. This is flood lighted at night. The trucking platform is completely enclosed and is 18 feet wide and 313 feet long. There are 18 doors for trucks to be loaded and unloaded.

The truck court can accommodate eight large trailer trucks at one time and is completely enclosed so that merchandise can be handled without delay in bad weather. The doors in the court are electrically operated. Since trucks vary in height eight "levelators" have been installed, making unloading and loading easier by bringing the level of the truck bed to conform with the platform height.

The two corridors are 20 feet wide and run the width of the building with vestibules at each end. They are refrigerated, which minimizes refrigeration loss from the storage rooms, and prevents condensation.

Storage Rooms Are Convertible

The warehouse rooms are convertible to either freezer or cooler. There are a total of 19 rooms, including six blast freezing rooms. The size of the rooms are as follows: four rooms 120 feet wide and 120 feet long, one room 80 feet wide and 120 feet long, six rooms 40 feet wide and 120 feet long, two rooms 40 feet wide and 60 feet long, 6 blast freezing rooms 20 feet wide and 30 feet long.

The blast freezers each have a capacity of freezing 50,000 pounds of fresh product in 24 hours. The total capacity of the warehouse is 1,777,000 cu. ft. of refrigerated space.

Cork insulation was used throughout. There are 6 inches on the floor and outside walls and 8 inches on the roof. The interior walls have 4 inches. The exterior of the blast freezers have 10 inches.

Fin coils are used throughout the plant. Cold brine is used as a refrigerant in the storage rooms and ammonia direct expansion in the blast freezers. A hot brine system is used to defrost the coils when necessary. A sprinkler system is installed in every room and throughout the warehouse and is known as a dry system.

The plant capacity is approximately 300 tons of refrigeration, produced by three compressors which are driven by 200 hp motors and six compressors which are driven by 60 hp motors. The engine room is semi automatic.

Refrigeration System Flexible

The Carrier refrigeration system with which this plant is equipped has been designed for extreme flexibility and economy in handling the wide load variation expected, due to the seasonal nature of food freezing operations and seasonal temperature changes. The system will include nine heavy duty reciprocating compressors, and will supply both chilled brine for the storage areas and direct expansion ammonia cooling for the blast freezing tunnels. The temperature range will be from minus 30 F in the freezing tunnels to minus 10 F in more than a million cubic feet of

freezer storage to plus 35 F in the remainder of the storage space.

Six compressors will be assigned to the low stage of the two-stage system. Two of these will normally handle the blast freezing load, operating at a suction temperature of minus 40 degrees, and the other four will be used to chill brine for the storage areas, using shell and tube coolers and operating at a suction temperature of minus 30 degrees.

However, all six compressors will discharge into the same intercooler and the system has been interconnected so that any of the low stage compressors may be used for either the brine or the blast freezing.

The two blast freezer compressors will handle a total refrigeration load of 72 tons at the extreme low temperature required, and the four brine cooling units will handle 206 tons.

Three compressors will be used on the high stage with two in operation and the third as a standby unit. Each of these will provide up to 140 tons of capacity.

The two blast freezer tunnels, each of them 32 feet by 20 feet by 7½ feet high, will employ a total of eight dry surface prime coil cold diffusers.

The rail siding is private, 1050 feet long and 10 to 14 cars may be spotted for loading or unloading at the platform, which is 344 feet long and 20 feet wide. The Minneapolis and St. Louis Railway serves the warehouse.

Ventilating pipes are laid 6 inches apart under the entire floor area for the purpose of permitting air to circulate to eliminate the possibility of ground freezing from the low temperatures above.

Completely Palletized

The plant is completely palletized. There are five Lewis Sheppard fork trucks with a lifting capacity of 2550 pounds and 3470 pounds. Two sizes of pallets will be used, 40x48 inches and 48x48 inches. It will require 12,000 to 14,000 pallets for the warehouse.

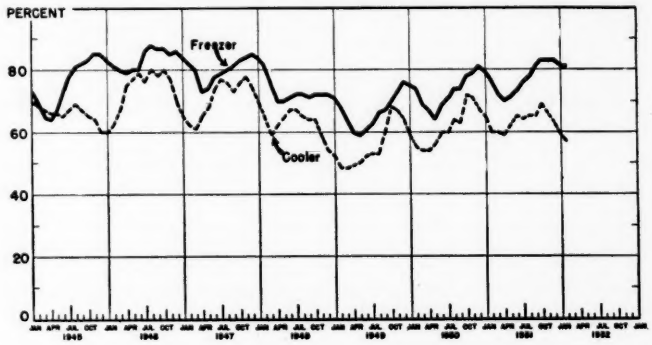
John B. Frane, who has had more than twenty five years' experience in the refrigeration of perishable food, is manager of the new plant. This is the second Merchants' warehouse in the midwest, which area is under the supervision of Edwin M. Neylon, vice president of St. Louis.

Merchants Refrigerating Company owns and operates seven other warehouses in New York City, Buffalo, Jersey City, Newark and St. Louis. Arthur N. Otis is president of the company.

Cold Storage Holdings February 29

UTILIZATION of public cooler space declined during February but the expected change was not as great as historical performance would indicate. By the end of February, public cooler occupancy was reported to be 57 percent as compared with 59 percent on January 31. This 2 point decline was only half the average decrease for this time of year. A year ago, occupancy declined 5 points to 60 percent, while average occupancy for this time of year was 58 percent.

weights and 1 percent decrease in freezer weights brought national totals down to 1.6 and 2.3 billion pounds, respectively, by February 29. Cooler-held commodities were below average for this time of year and the total weight in storage last year. On the other hand, freezer-held commodities totaled more than the stores last year and average end-of-February stocks. During February a net decrease in cooler weights of 308 million pounds were reported, which



Occupancy of Refrigerated Warehouses 1944-1952

Freezer occupancy at 81 percent by the end of February was equal to the occupancy reported on January 31. Average end-of-month freezer occupancy for February and last year was 76 percent which indicates the greater extent freezer space is being used today as compared with historical use. Ordinarily, a decrease in freezer use is expected during February and there is only one instance on record when such a change did not materialize—February 1944.

A 16 percent net decrease in cooler consisted primarily of fresh, dried, and evaporated fruits, cheese, dried eggs, and cured beef. These net withdrawals exceeded storage gains in shell eggs and selected meat items.

Holdings of fresh apples were reduced during February to approximately 11 million bushels; pears to less than 300,000. Both were below average for this time of year and their respective levels of last year.

Frozen fruit stocks decreased by greater than average amounts during February (34 million vs. 29 million)

TABLE I—COLD STORAGE HOLDINGS IN PUBLIC, PRIVATE AND SEMI-PRIVATE WAREHOUSES, APPLE HOUSES AND MEAT PACKING PLANTS (000 LBS.)

	Feb. 29, 1952	Jan 31, 1952	Feb. 28, 1951	Five-year Average
Meat and meat products, lbs.	1,195,518	1,096,345	917,774	880,735
Lard and rendered pork fat, lbs.	53,492	49,284	89,433	121,042
Frozen poultry, lbs.	269,334	300,000	242,023	236,048
Creamery butter, lbs.	7,663	13,874	52,507	34,284
American cheese, lbs.	141,942	167,824	137,397	113,168
Other cheese, lbs.	14,929	17,861	17,798	15,836
Shell eggs, cases	928	238	159	327
Frozen, eggs, lbs.	59,935	53,055	32,712	71,744
Apples, bu.	10,805	16,014	20,135	14,235
Frozen fruits, lbs.	268,284	302,751	284,145	283,481
Frozen vegetables, lbs.	397,312	444,409	328,520	277,310
Frozen, fish, lbs.	125,772	148,113	106,834	101,044

TABLE II—PERCENTAGE OF SPACE OCCUPIED BY PUBLIC COLD STORAGE WAREHOUSES (APPLE HOUSES EXCLUDED)

	Net Piling Space (000 cu. ft.)		Feb. 29, 1952 (%)		Jan. 31, 1952 (%)		Feb. 28, 1951 (%)		5-Year Average (%)	
	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer
New England	3,014	6,152	45	81	45	83	58	84	50	77
Middle Atlantic	35,747	32,889	54	79	58	82	60	76	55	75
East North Central	28,382	26,175	60	86	63	85	66	80	61	78
West North Central	9,031	14,437	36	90	53	87	62	84	63	84
South Atlantic	8,519	6,941	59	84	64	86	53	80	58	81
East South Central	2,749	3,277	57	88	64	92	63	78	66	82
West South Central	6,809	7,729	63	63	61	63	58	61	63	70
Mountain	1,487	2,510	67	91	57	90	64	73	59	76
Pacific	14,271	21,925	46	74	56	75	55	66	55	68
United States	110,009	122,035	57	81	59	81	60	76	58	76

to bring the national total down to 268 million in store. This compares with 284 million in store last year and average end-of-February stocks of 283 million pounds. Almost half of the total decrease was accounted for by the net disappearance of 15 million pounds of strawberry stocks which were reduced to 71 million pounds by the end of last month. The next largest reduction was reported in cherry holdings with stocks down 7 million pounds to 50 million. Smaller decreases were reported for other frozen fruit items.

Frozen orange concentrates increased to almost 15 million gallons which was a net increase of 4 million gallons during February. Approximately 9 million gallons were in South Atlantic storages, while 2 and 1 million gallons were in Middle Atlantic and Pacific Coast storages, respectively, on February 29. Other frozen juices and purees fell off to 56 million pounds during the period.

Frozen vegetables reflected a net seasonal decrease of 47 million pounds which was equal to the net decrease last year but more than two-fifths greater than average. Total holdings on February 29 were 397 million pounds as compared with 329 reported in store last year and 277 million on hand by the end of February during the 5-year period ended 1951.

Holdings of creamery butter were the second lowest on record for this time of year. Less than 8 million pounds were in storage and of this amount Middle Atlantic, West North Central, and Pacific storages each held approximately 2 million pounds.

American cheese stocks declined to about 142 million pounds for a net reduction of 26 million during February. Total cheese on hand by the end of last month was 164 million pounds.

Except for end-of-February stocks reported in 1944 and 1946, the amount of shell eggs reported in store was the largest on record for this time of year. Total holdings amounted to 928,000 cases as compared with 159,000 last year and average holdings of 327,000 cases. More than a third of the national total was in the East North Central area.

Frozen egg stocks reflected a gain of 7 million pounds to reach almost 60 million pounds on February 29.

A contra-seasonal movement of beef into storage brought national holdings to 250 million pounds which was the greatest reported for this time of year since 1944 and the second largest since 1920. Frozen beef totaled 240 million pounds or about three-fourths greater than average.

Frozen pork increased to 539 million pounds for an all-time record high. All classes of pork in storage totaled almost 800 million pounds which was not at a record high but was the largest reported since 1944.

National holdings of all meats reached the sum of well over a billion pounds but did not exceed the amount reported in store in 1944.

Seasonal decreases in fishery holdings reduced the national total from 167 million pounds on January 31 to 143 million by the end of February. This compares with 120 million in store by the end of February during the 5-year period ended 1951 and 124 million on hand a year ago.

Storage Outlook

Cooler space utilization by the end of February did not fall off as fast as indicated by historical performance. This was due, no doubt, to the sharp increase in the movement of shell eggs into storage which by the end of the month was unseasonably high. Eggs will continue to move into storage, but occupancy should still continue on its downward cycle or perhaps level off as it did last year. However, according to the 5-year average cooler occupancy declines 2 points during March. Freezer occupancy leveled off during February whereas the expected change was a drop of 2 to 3 points.

Meats moving into store at record levels apparently countered above average withdrawals of frozen fruits and vegetables and so held occupancy at the level reported a month earlier. However, these freezer items should reflect seasonal net decreases by the end of March and freezer occupancy may reflect this movement by dropping as much as 4 points.

TABLE III—PERCENTAGE OF SPACE OCCUPIED BY PRIVATE AND SEMI-PRIVATE REFRIGERATED WAREHOUSES AND MEAT PACKING PLANTS (APPLE HOUSES EXCLUDED)

	Private and Semi-Private Warehouses						Meat Packing Establishments					
	Net Piling Space (000 Cu. Ft.)		Space Occupied—Per Cent Feb. 29, 1952		Space Occupied—Per Cent Jan. 31, 1952		Net Piling Space (000 Cu. Ft.)		Space Occupied—Per Cent Feb. 29, 1952		Space Occupied—Per Cent Jan. 31, 1952	
	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer
New England	7	6	50	50	50	50						
Middle Atlantic	1,267	1,356	39	73	40	80	1,405	251	82	86	65	79
East North Central	3,439	1,347	73	56	74	78	4,084	4,288	86	96	89	95
West North Central	497	2,279	74	75	87	77	4,936	4,188	90	94	92	94
South Atlantic	477	3,965	66	69	69	61	440	16	74	100	87	100
East South Central	82	165					351	114	93	93	100	94
West South Central	237	181	85	90	76	88	400	160	100	100	100	100
Mountain		41		20	92	68					84	98
Pacific	3,535	3,632	29	58	41	74	458	223	100	98	95	92
United States	9,541	12,972	52	65	59	72	12,074	6,240	88	95	90	94

NOTE:—Blank spaces indicate that insufficient returns were received.

FrozenFoods
*Reg. U. S. Pat. Off.
PREPARATION PACKAGING FREEZING STORAGE DISTRIBUTION DESIGN CONSTRUCTION EQUIPMENT

Frozen Foods Industry Surveys Conditions And Problems at Annual Convention

THE annual national frozen foods convention was held in Chicago the week of March 3. Participating in the meeting were the National Association of Frozen Food Packers, National Wholesale Frozen Food Distributors Association, National Food Brokers Association, and National Association of Refrigerated Warehouses.

The various meetings, luncheons, panel meetings, symposiums and the annual banquet were well attended and a number of outstanding addresses were presented. It was pointed out that there are today some 1,275 to 1,300 frozen food packers or processors of commercial frozen foods compared with about 400 in 1945. Some 450-475 types of frozen food products are commercially packed, including vegetables, fruits, juice concentrates, seafoods, poultry, meats and specialty items.

Better Warehousing Practice

At a symposium of frozen food distributors, George H. Thomas, a Cincinnati distributor spoke on better warehousing practice. Mr. Thomas explained that all their sales are done by advance selling, with delivery the second day after the salesman's call. The merchandise distributed includes retail and institutional frozen foods, boxed frozen fish, salt fish, jar fish, retail and institutional Kraft products. With this variety of products their operations differ in some respects from a set up handling only frozen foods.

The warehouse is divided into sections for the most convenient handling. It has 4200 square feet of freezer space for order packing, 512 square feet of cooler space for the Kraft line, 1400 square feet of warehouse space in which is packed non-refrigerated merchandise, and 4,000 square feet for canned goods storage. At present, all of the bulk storage of frozen foods is being stored at a commercial warehouse; however they are now in the process of building a freezer of 6,000 square feet which will store 2,000,000 pounds of frozen foods.

Three years ago they set up a palletizing system and arranged with the commercial warehouse to fill orders on pallets. They had a non-refrigerated van truck equipped with a roller conveyor so that the truck could be quickly loaded by pushing the pallet loads to the front of the body. To unload the truck at the plant, which does not have a truck dock, they take the pallets off with a fork lift and move the pallet loads of merchandise into the order packing room. These pallets will hold from 20 to 199 cases of merchandise, depending upon the size of the case and are stacked approximately four to five high.

Every item has a definite place in the freezer, with the fast moving items closest to the packing table and the rest of the items arranged according to their rate of sale. In turn, the items are arranged on the packing table to conform with their order on the invoice. In the past year they were faced with rising packing costs. They were selling an item in units of six because of the limited cabinet space in the stores, but to reduce costs they decided to sell an item in units of twelve, by splitting a case of 24 in half. This method has enabled them to save man hours in packing orders.

Previous to this, they had been opening a case by hand and turning it out onto a packing table, then repacking it into another box in half dozen quantities. After an order is packed, it leaves the freezer on a roller conveyor passing a second packing line where any cooler or dry items are added to the order. The completed order then passes directly onto the trucks.

Before the installation of their palletized system they were spending 100 man hours a week to put away manually the merchandise that was brought in from commercial storage. With this new operation this time was cut to 35 hours a week. By the same token, the trucks were taking 30 hours a week to pick-up merchandise at the warehouse, and now this time has been cut to ten hours a week. In January of 1949, when they purchased their fork lift and pallets, Mr. Thomas said, the total cost was $4,500 and savings in man hours has paid for this capital outlay in one year.

Price Stabilization

At a joint luncheon of distributors and packers, Ellis Arnall, director of Price Stabilization, gave a general talk on the price stabilization program. Mr. Arnall formerly was a member of the law firm which is counsel for the Association of Frozen Food Packers.

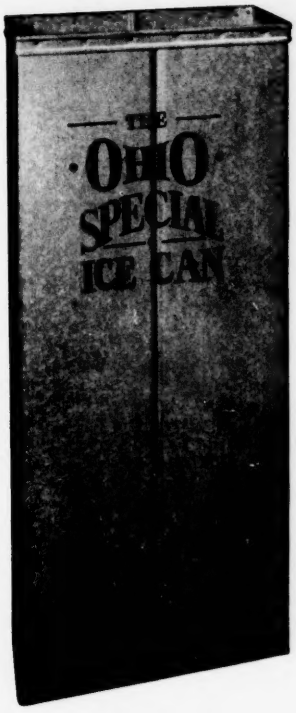
He announced that at the present time his office is working with representatives from the frozen food industry to improve the frozen fruits and vegetables price regulations. They are giving serious consideration to the recommendations for possible amendments to the 1951 regulations and for new regulations to cover the 1952 pack.

Better Marketing Of Frozen Foods

A vigorous plea for better marketing methods in the frozen food industry was offered by Alvin Langfield, president of the National Wholesale Frozen Food Distributors Association.

The conventional method of distribution from packer to distributor to retailer, he stated, was as direct as a straight line between two given points. And yet, many packers in order to increase their volume started sending salesmen to call on chain-store buyers. The distributors then were faced with losing much business to direct store buyers, so they developed other items including their own sponsored brands.

This paved the way for and ushered in second grade goods which are



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Kraft Foods Company
Kroger Company
Land O'Lakes Creameries, Inc.
Muller Dairies, Inc.
National Biscuit Company
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Frozen Food Production

Fruits and Vegetables

1,144,000,000 lbs (475,000,000 fruit — 669,000,000 vegetables). This compares with 1950 production of 1,059,274,000 lbs and five years ago (1947) of 793,521,000 lbs.

Frozen Juice Concentrates

Production of frozen orange juice concentrate alone in the 1950-1951 season was 36,000,000 gallons. About 36,000,000 gallons were packed in Florida and 5,000,000 in California. In the 1945-1946 season, Florida, then the sole source of concentrated orange juice, packed 226,000 gallons. Leaders in the concentrate field estimate 1952 orange juice concentrate production at 43,000,000 gallons (35,000,000 from Florida and 8,000,000 from California, with retail sales topping $100,000,000).

Frozen Seafoods

Production reached an all-time high with the total U. S. and Alaska output amounting to 325,000,000 lbs, as compared to the 1950 pack of 287,000,000 lbs.

Frozen Eviscerated Poultry

1951 production of frozen eviscerated chicken was slightly over 660,000,000 lbs. Eviscerated chicken production in 1950 in federally inspected plants totalled 408,000,000 lbs as against 185,000,000 lbs in 1947. While total production of all types (fresh, canned, frozen) eviscerated poultry, etc. has increased some 87 percent since 1941, production of frozen eviscerated poultry has increased over 400 percent.

Army Purchases

1951 procurement of frozen vegetables, fruits and juice concentrates by the U. S. Army Quartermaster Corps totalled 92,289,000 lbs, an increase of over 48,000,000 lbs over 1950. Frozen vegetable purchases of 62,724,000 lbs and frozen fruit purchases of 29,565,000 lbs marked all-time highs. The Quartermaster took 12,405,000 lbs of frozen juice concentrates last year; 87,170,000 lbs of frozen eviscerated poultry, an all-time high, and 31,868,000 lbs of seafood of which 95 percent was frozen. More frozen foods were used for a military establishment of 3,400,000 men in 1951 than in 1945 for 11,608,000 men.

proving severe competition for the first grade brands. This impact of second grade brands, Mr. Langfield believes, is important because in his opinion they are here to stay. They are good enough, he continued, for the average family for the average meal and the difference in price makes them sufficiently attractive to induce larger purchases because they stretch the family budget. And, it has been shown that people buy them undoubtedly because they consider them good value. These second-grade brands, he said, go on a direct line from packer to distributor to retailer with an absolute minimum of branch-office expense, high priced sales executives travelling around the country, and other frills.

As a remedy, he offered a proposal that a distributor be appointed who has the proper warehousing facilities and sales organization and adequate capital to become the sole selling agent within a given territory. The packer would have only one buyer within that area—the distributors would handle all sales including those to general stores.

Packers Talks on Distribution Practices

The problems of distribution from the packer's viewpoint were discussed by K. G. Dykstra, Birds Eye Laboratories, Albion, N. Y. who based his talk on industry-wide conditions. A survey of conditions found in the storage and distribution of frozen foods was started, he said, because there were indications that the quality of frozen foods received by the housewife is not the same high quality originally present when it is packaged. While the total of such complaints is a smaller percentage of the total business, the astute business man will recognize them as an index of dissatisfaction in other greater degree than the actual percentage of complaints would indicate.

On the subject of public warehousing, the survey showed no really serious elevated temperatures in any of the public warehouses in the two distribution areas studied. Temperatures ranged from minus 10 F to slightly above 10 F. The average temperature was slightly below 0 F. One warehouse operated at minus 20 F. Three warehouses registered temperatures at or above 10 F. Product is in storage in these warehouses for periods varying from a few days to one year or more.

While this is generally a favorable picture, it must be remembered that the time of exposure of frozen foods in public warehouses is long. Therefore, temperatures of storage only slightly above the ideal may result in a very serious deterioration of quality. Certain products highly sensitive to temperatures above 0 F. may show deterioration when held for six months to one year at 10 F. or slightly above. Unfortunately, all too little is known about many minor changes in quality of most frozen foods when held at temperatures in the range of 0 F to 10 F to 15 F.

The extent of deterioration, or damage, caused by such elevated temperatures is highly specific for the various frozen food products. For example: Frozen concentrated orange juice is a highly sensitive substance and will deteriorate badly in flavor and in ability to reconstitute properly if held for extended lengths of time of from 10 F to 15 F. Because of the variable and unusually long time of exposure, frozen foods in public warehouses should be kept at temperatures of 0 F. or below, he said.

Incoming shipments observed were unloaded and in the warehouse in the minimum time of two hours and a maximum time of eight hours. The maximum time merchandise was found left unprotected was 1½ hours. The eight hour period was considered too long for safe practice. Also, merchandise left unprotected for longer than 30 minutes is exposed to a hazard. A period of one hour or more unprotected in the summertime will cause an appreciable rise in product temperatures. Housekeeping was generally good. There was little evidence of product being stacked against walls or being stacked without dunnage or pallets.

Breakup Rooms

In regard to breakup or assembly room practices, by far the majority of merchandise was prepared for distribution to retail outlets at the public warehouses. Not more than 10 percent of the merchandise was moved to outside assembly rooms. The practice of assembling orders on the premises of the public warehouses removes one extra exposure hazard, and is therefore considered a desirable practice.

Order assembly practices from here on vary greatly. Temperatures in breakup rooms range from minus 2 F to as high as 40 F. The breakup room usually serves as a supplementary storage. Frozen foods may remain in these rooms for period up to ten weeks or longer. In one severe condition, product was found stored 15 to 20 days at temperatures in excess of 25 F. In another instance, room temperatures were above 40 F and product remained in this room for three to five days.

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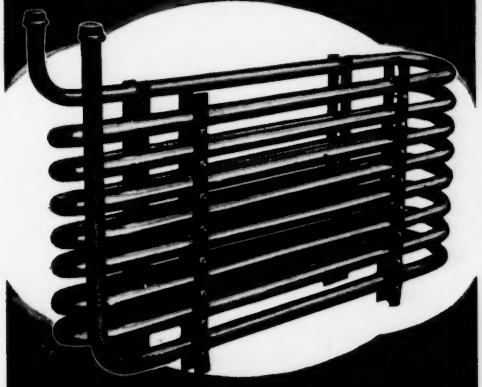

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Fortunately, those breakup rooms handling the majority of the merchandise were held at temperatures below 10 F. Generally, product was not stored in these rooms for period greater than five to fifteen days. Contrary to conditions found in warehouses, good warehousing practices were not followed very well in any of the breakup rooms. It was not uncommon to find merchandise stacked on the floors or next to the walls and to find refrigeration coils badly covered with frost in these breakup rooms.

The conclusions: There is much room for improvement in breakup room or order assembly room practices. Some specific recommendations:

1—Use good frozen food warehousing practices in the breakup rooms.

2—Keep the temperature in the room at a minimum; preferably at or below 10 F.

3—Keep the time of product exposure in breakup rooms at a minimum. Don't make these rooms storage rooms any more than is absolutely necessary.

Observations of time and temperature were taken on a great many retail deliveries in order to obtain a cross section of conditions in this phase of the frozen food distribution system. In this study, in both mechanical equipment used and in practices, conditions good, fair, and bad, were found. All trucks were insulated except a few used for short individual deliveries. Dry ice was the most commonly used refrigerant. If sufficient dry ice is used in proper manner, fairly good performance results.

Retail Outlets For Frozen Foods

Discussing the results of surveys of retail outlets for frozen foods, E. L. Morin, Seabrook Farms said that the problem here, as it is throughout the distribution system, is one of preserving the original quality of the product. The survey showed that most frozen food retailers could effect a number of changes in their present procedure for handling frozen foods that would reduce their costs, and at the same time, do a better job of preserving product quality.

Some of the most prevalent abuses in retail stores are letting goods sit around for an average of over two hours before they are put under proper refrigeration. This not only causes deterioration of the foods but increases the load when they are finally put under refrigeration. Another fault found was that too often new goods are stocked on top of the old and are the first to be sold, leaving the accumulation of progressively older stock in the bottom of the cabinet. The sad part is that the people responsible for creating these costly and quality-robbing conditions are not aware of their mistakes.

With the better designed cabinets that have appeared during the past few years, it would seem that the improvement in temperature conditions would be much more impressive than it actually is. It is true that there are still many old style cabinets in use that are incapable of holding temperatures of 0 F or below, but it must be concluded that much of this present day high temperature problem at the retail outlets is due to one of the following factors: (1) delay in placing the shipment under refrigeration, (2) loading above the safe level mark, (3) neglect or failure to remove frost accumulation, (4) faulty location of the cabinet, (5) mechanical failure or faulty operation of cabinet.

Effect of Temperature on Quality of Frozen Foods

The effect of temperature and length of storage on the quality of frozen foods was discussed by three speakers at a symposium held by the National Association of Frozen Food Packers.

On the subject of frozen citrus concentrates, W. R. Roy, director of research for Minute Maid Corp., Plymouth, Fla., said that to maintain optimum flavor, rigid control must be exercised by the best known methods of juice extraction and finishing and by maintaining low processing temperatures of 65 to 75 F. during concentration. Since frozen citrus concentrate is not subject to heat treatment at any time during processing, preservation quality in intervals between production and consumption is entirely dependent on storage distribution and handling at the proper temperature level.

Speaking on meats, poultry and pre-cooked foods, Dr. Gladys E. Vail, Kansas State College, said that with both finished and cooked meat and poultry dishes, it was quite probable that for long storage periods, a low temperature is desirable. When storage temperatures of 0 F or above are used, then the storage life of the product probably will be limited and the person responsible for the food must act accordingly. One of the serious temperature problems as regards frozen foods, is in the retail channel. Containers of frozen foods standing on a loading dock in the 110 F sun cannot help but have a deteriorating effect even though they may be there only a short time. Where the thermometer beside the frozen food counter registers from 20 to 30 F the required quality cannot possibly be maintained.

R. R. Legault, representing the Western Regional Research Laboratory, said that results of studies on the effects of temperature and length of storage have led to the general use of temperatures in the region of 0 F for storage of frozen foods. In the last several years, there has been increasing concern over the effects of the various temperatures encountered by a frozen food in its complete life. Work along this line has been started in several institutions.

The work done so far on fruits has shown definite indications of wide variability in stability between commercial packs of fruits. This variability appears to depend to a large extent on the quality of the fruit, particularly in strawberries. Frozen peaches vary in stability primarily because of difference in amount of sirup in the container, in that earlier and more extensive browning occurs where the fruit is not adequately covered.

Ask Suspension of Price Controls

Suspension of price controls on frozen fruits, berries, vegetables and juices was urged in a resolution adopted by the Board of Directors of the packers at a meeting held March 6. The resolution asks for suspension of price controls on these products until such time as they become in such short supply as to require reinstatement of controls in the public interest.

The packers called attention to the favorable supply situation and cited figures showing that despite significant gains in usage of frozen foods in 1951, retail prices declined five percent. Increasing competition in the industry is continuing the pressure for lowered prices, the resolution points out.

Officers Elected

C. L. Snavely, Consumers Packing Co., Lancaster, Pa., was elected president of the National Association of Frozen Food Packers; M. K. Spiegl, Spiegl Farms, Inc., Salinas, Calif., first vice-president; and G. O. Bailey, Birdseye Division, General Foods Corp., New York City, second vice president. Lawrence S. Martin continues as secretary-manager, and Keith O. Burr as assistant secretary.

HOWE

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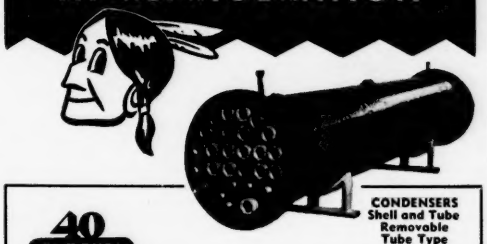

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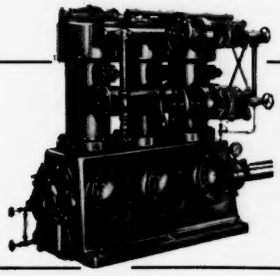

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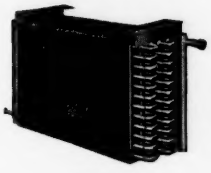
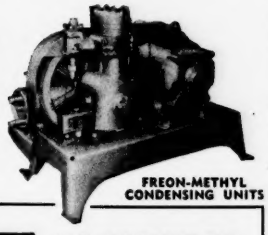


FIN COILS



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56-4

CONVENTION CALENDAR

INDIANA ASSOCIATION OF ICE INDUSTRIES

April 1-3, 1952
French Lick Springs Hotel
ROBT. W. WALTON, Secretary

MOUNTAIN STATES ASSOCIATION OF ICE INDUSTRIES

April 11-12, 1952
Brown Palace Hotel, Denver, Colo.
J. R. ESPY, Secretary

THE REFRIGERATION RESEARCH FOUNDATION

May 2-4, 1952
Roosevelt Hotel, New Orleans, La.
H. C. DIEHL, Director

NATIONAL ASSOCIATION OF REFRIGERATED WAREHOUSES

May 5-8, 1952
Roosevelt Hotel, New Orleans, La.
WM. DALTON, Executive Vice-Pres.

AMERICAN WAREHOUSEMEN'S ASSOCIATION

May 5-8, 1952
Roosevelt Hotel, New Orleans, La.
WM. DALTON, Executive Vice-Pres.

AMERICAN SOCIETY OF REFRIGERATING ENGINEERS

June 1-4, 1952
Baltimore Hotel, Atlanta, Ga.
M. C. TURPIN, Secretary

NATIONAL ASSOCIATION PRACTICAL REFRIGERATING ENGINEERS

November 12-14, 1952
Adolphus Hotel, Dallas, Tex.
A. R. CARLSON, President

British Exports of Refrigerating Machinery

DURING December refrigeration machinery to the value of £1,067,365 ($2,989,606.) weighing 2,010 tons, was exported from England. Comparable figures for December, 1950, were 2,885 tons, value at £988,312 ($2,767,273.60). Monthly average during 1938 was 236 tons, valued at £33,031 ($91,486.80).

Of these exports 28 tons went to British West Africa, 199 tons to the Union of South Africa, 29 tons to Southern Rhodesia, 161 tons to British East Africa, 1 ton to Bahrein, Kuwait, Qatar and Trucial Oman, 51 tons to India, 332 tons to Australia, 121 tons to New Zealand, 17 tons to Canada, 65 tons to British West Indies, 218 tons to "other Commonwealth countries," 47 tons to the Irish Republic, 112 tons to Sweden, 53 tons to the Netherlands, 12 tons to Egypt, 30 tons to Brazil, 3 tons to Argentina, 532 tons to "other foreign countries."

New Incorporations

Tulsa, Okla.—City Ice Company and City Ice Delivery Company, both of Tulsa, Okla., have been incorporated with $75,000 and $25,000 capital stock respectively with K. F. Addison, Mattie M. Addison, Tulsa and C. C. English, Shawnee as incorporators of both companies.

Houston, Tex.—Fifty year charter of incorporation has been granted Southern Cold Storage Company, Inc., it was announced February 17. Incorporators: Eula Mae Baugh, George E. Tharp and John F. Baugh. Capital stock was listed at $60,000.

New York, N. Y.—Articles of incorporation have been filed with the office of the secretary of state, Albany, N. Y. for Greenwich Refrigerating Co. Inc., food and food products; cold storage business, warehousing. Capital stock was listed at 200 shares no par value. Directors: G. Andrew Albigese, Robert M. Albigese and Abraham Kraditor.

ASSOCIATION DIRECTORY

AMERICAN INSTITUTE OF REFRIGERATION
H. T. McDermott, Gen. Secretary, 433 N. Waller, Chicago 44, Ill.

NATIONAL ASSOCIATION OF ICE INDUSTRIES
Guy W. Jacobs, Secy., 1706 L St., N. W., Washington 6, D. C.

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Wm. Dalton, Exec. Vice-Pres. Tower Bldg., Washington 5, D. C.

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Matt Scherer, Secretary
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McPherson, Kansas

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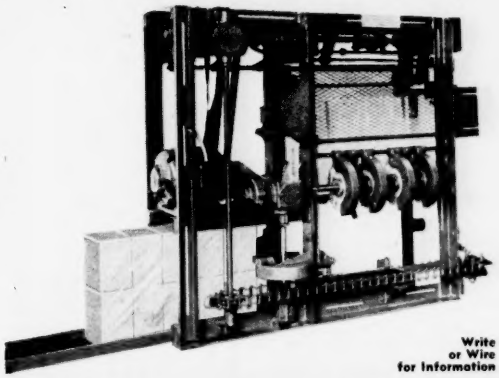
Scoring Machine is the lowest priced, completely automatic, Heavy-duty Scoring Machine on the market. Hundreds of Miller machines are in use all over the country and have been for many years.

Like all other Perfection products, the MILLER is sturdy, fast, economical in operation and maintenance.



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TRI-PAK *Crusher-Slingers*

A CHOICE OF FIVE MODELS TO FIT YOUR PARTICULAR OPERATION .....

There is a Tri-Pak ice crusher-slinger for every icing need. Whether you ice fishing boats, top ice carloads of vegetables, or re-ice refrigerator trucks, one of Tri-Pak's five sturdy, dependable units is size-rated for your job. All Tri-Pak crusher-slingers save labor by taking full-sized 300 pound blocks of ice. You can depend on these well engineered, sturdily built icing units.

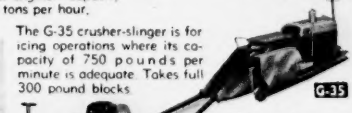
The "Mobil-Icer" is here icing a carload of carrots at the rate of 5 tons every 7 minutes. The trailer mounted "Mobil-Icer" is ideal for team track icing as it can be towed by the truck carrying the ice. The unit is powered by an 8-cylinder Ford industrial engine. Capacity is 55 tons per hour.

M-337

The M-337, known as "Mobil-Icer," is ideal for team track icing with a capacity of 55 tons per hour. Powered by an 8-cylinder Ford industrial engine.

G-100

The model G-100 rolls easily on 3 rubber-tired, ball bearinged wheels. Powered by an 8 cylinder Ford industrial engine. Capacity 55 tons per hour.



G-35

The G-35 crusher-slinger is for icing operations where its capacity of 750 pounds per minute is adequate. Takes full 300 pound blocks.

E-40

The E-40 combines high capacity with the quietness and dependability of the electric motor. Capacity 55 tons per hour. Powered by a 10 HP electric motor for crushing, 30 HP motor for slinging.

E-13

The E-13 has a capacity of 600 pounds per minute. Uses one 3 HP and one 10 HP electric motor.

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YOUR CATALOG

TRI-PAK MACHINERY SERVICE, Inc. ★ HARLINGEN TEXAS

New Plants and Improvements

Colorado

Pueblo, Colo.—One of the largest frozen food distributing installations in Colorado was put into effect recently through the Associated Grocers produce warehouse, according to Thomas Najamura, AG produce manager for this area. Nakamura said the Associated Grocers will handle nationally known brands such as Honor Brand and Bird's Eye frozen foods. A large stock of frozen fish also will be distributed.

Indiana

Madison, Ind.—The Pearl Packing Company has announced plans to build an addition to the packing plant which will double the present capacity.

New Mexico

Farmington, N. Mex.—Chick Kelloff, who was owner of a supermarket here, is constructing a new fruit packing and storage plant to handle farm products of the San Juan Valley which will include cold storage equipment.

Oregon

Portland, Ore.—Holman Transfer Company's new $750,000 warehouse at 48 S.E. Hawthorne Boulevard is now completed. Besides warehouse and office space, there are cold storage and freezer rooms.

Portland, Ore.—The Northwest Ice & Cold Storage Company has bought an industrial site of ten and a half acres for further expansion at some future date of its expanding cold storage activities. The purchase price for the land was some $30,000.

Woodburn, Ore.—The Terminal Ice and Cold Storage Company plans a new plant. It will be placed, with facilities for further expansion, on a nine acre tract. Main building will cover a ground area of 138 by 136 feet and will be 31 feet high.

Washington

Tacoma, Wash.—The South Tacoma Refrigerating Company plans an addition to its facilities at 5205 S. Tacoma Way. Plans call for an addition covering a ground floor area of 25 x 25 feet, with insulation six inches thick. Cost of building will be about $10,000. When the edifice is completed, it will be fully equipped with cold facilities at a low temperature.

Waitsburg, Wash.—The Pictsweet freezing plant is undergoing extensive remodeling with repairs to the entire building which were made necessary by deterioration due to moisture during the freezing process. The remodeling will put the building in practically new condition for the 1952 pea pack.

Sales and Reorganizations

Arkadelphia, Ark.—Southern Ice Company has sold its old plant at the foot of Caddo Street to Ralph Williams, proprietor of the Clark County Lumber Company. Southern Ice Company, managed by Roy Duke, has a modern new plant at 14th and Pine Streets, here.

Carlyle, Ill.—Lawrence Schmitz has sold the ice business to his brother, Al Schmitz. The ice house will be moved to 1050 Jefferson St., one block east of the present location.

Harrisburg, Ill.—The West Frankfort Ice Company here has purchased the Harrisburg Ice Company, according to an announcement by G. C. Benson, vice president and manager.

Colby, Kans.—The Colby Ice and Locker plant, taken over several months ago by the Reconstruction Finance Corp., was sold recently to J. F. Schlitz of Oakley. The plant was built several years ago at a cost of $125,000.

Bangor, Mich.—Cold storage capacity of the Bangor Fruit Exchange will be doubled and fruit handling facilities greatly expanded by the exchange's recent purchase of the Minardo Oh-Gee Farms fruit packing plant. Located within 20 feet of the exchange's 30,000 bushel cold storage building, the Minardo plant will provide a marked speed-up in the exchange's apple and peach packing operations, according to Miles Balfour, co-manager of the exchange. Addition of the Minardo plant's 30,000 bushel cold storage will boost storage capacity to 60,000 bushels.

Centralia, Mo.—R. H. Garrard, owner of the Centralia Ice & Coal Co. has sold his business to L. V. Mika who will carry on the business at its present location.

Tulsa, Okla.—Following sale of a portion of the facilities of the city's two largest ice companies, Tulsa and Peoples, The City Ice Company was formed, involving all the Tulsa properties of the Peoples Ice Co., and the delivery facilities of The Tulsa Ice Co. Kenneth Addison is president of the new company and Charles C. English is secretary-treasurer. A subsidiary Company, City Ice Delivery Company was organized to deliver ice made by City Ice. Peoples Ice, formerly a subsidiary of the Public Service Co., will continue to operate plants in twenty-four other communities as well as locker plants.

Ontario, Ore.—The former Bridgford Frozen food plant which has been operated for the past three seasons under lease by the Oregon Frozen Food Company was purchased by that company at an auction sale from the Reconstruction Finance Corporation. The Oregon Frozen Food Company is a corporation owned by local stockholders.

Fires and Accidents

Belding, Mich.—Fire destroyed a packing and storage plant on the apple farm of Willard H. Braman, four miles northwest of here, with loss estimated at between $50,000 and $60,000. The warehouse contained more than 10,000 bushels of apples.

DEATHS

Robert Yunker

THE death of Robert Yunker, president of the Pearl Packing Company, Madison, Ind., occurred suddenly February 13, following a heart attack. He was stricken at the plant and expired without regaining consciousness. He was 59 years old.

Mr. Yunker was born in Madison and had lived in or near that city all of his life. He had been associated for many years with the packing plant which was founded by his late father and had been president of the corporation for many years. The company's chief business was meat packing and it also manufactured and sold ice.

He was a director and officer of Madison banks and other companies, a leader and past president of the Madison Chamber of Commerce, and a lifelong member of St. Michael's Catholic Church. He was active in ice association affairs for many years and was a director of the Indiana Association of Ice Industries at the time of his death.

He is survived by his widow, Mrs. Nell Yunker, a brother and two sisters.

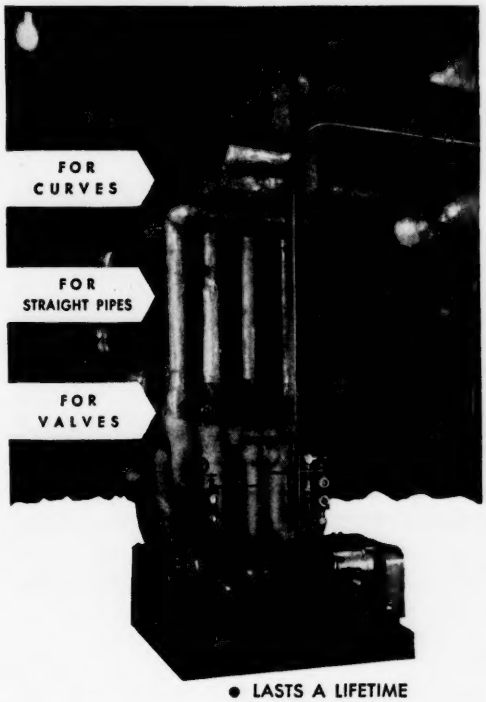
Frederick Willard

THE death of Frederick Willard, founder-president of the Holtville Ice & Cold Storage Company, Holtville, Calif., occurred unexpectedly at his home in Holtville, January 27. He was 75 years old.

Mr. Willard was an electrical engineer, graduate of the Massachusetts Institute of Technology and came to Holtville in 1924. Previous to that time he had been in public utility work in Texas and Oklahoma. With the late Dave Vencill, he started the Holtville Ice & Cold Storage Company as a 30-ton ice plant. Its vegetable-ice production capacity is now 640 tons.

Charles B. Hill

THE death of Charles B. Hill who had been in the ice business in Dallas, Tex., since 1906, died at the age of 71 at his home in Dallas, January 7. During the many years Mr. Hill was in the ice business, he had been associated with a number of pioneers of the Texas ice industry. At the time of his death, he was the owner of the Superior Ice Company in Dallas and the Independent Ice Company at Temple. He had been an active member of the Southwestern Association of Ice Industries for many years.



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OZITE All-Hair Felt has been the best insulation for the refrigeration industry for over half a century. Here's why —

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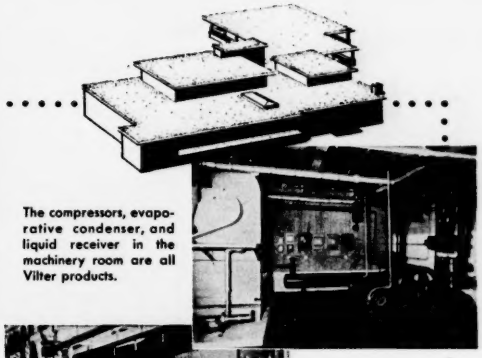
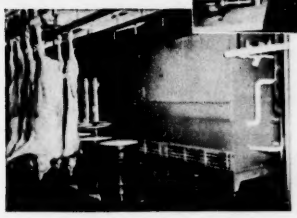


The compressors, evaporative condenser, and liquid receiver in the machinery room are all Vilter products.



Vilter Brine Spray units cool the Lundy chilling and holding rooms. Automatic controls for both moisture and humidity are used here.

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● The Lundy Packing Company was established in 1950 both to provide a new industry for Clinton, and to promote the raising of livestock throughout eastern North Carolina. At the present time, the Lundy plant processes hogs, and produces lard and other by-products.

Vilter refrigeration in the Lundy plant provides cooling and humidity control for the chilling and holding rooms, and cools a direct expansion lard roll. Operation of the Vilter compressors is automatic. The proximity of the Vilter Evaporative Condenser to the compressors adds to the savings of this thrifty Vilter unit.

Packers and processors throughout the country rely on Vilter refrigeration for the carefully controlled, fully dependable cooling they must have. Because Vilter equipment adds low operating cost and minimum upkeep to its reliability, plant after plant has standardized on Vilter.

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THE VILTER MANUFACTURING COMPANY
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Ammonia and Freon Compressors • Pakicers • Evaporative and Shell & Tube Condensers • Pipe Coils • Valves and Fittings • Air Conditioning

Henry Delbert Benning

THE death of Henry Delbert Benning, business man of Prattsville, Ark., occurred January 30 at a Little Rock hospital. He was 69 years old. Mr. Benning operated ice plants at Prattsville and Malvern for a number of years. He is survived by his widow, Mrs. Cora Benning, and two sons.

DR. JOSEPH S. CALDWELL, retired Department of Agriculture employee died Monday, February 18, at his home in Riverdale, Md., after a long illness. Dr. Caldwell retired from the department in 1948 after 30 years' of service as a plant physiologist. He was widely known for the practical value of his researches, particularly in the preservation of fruits and vegetables by dehydration and freezing, and on the changes during growth and development of good quality in fruits and vegetables.

HARRY B. NOBLE, Spencerport (N.Y.) ice house owner who in his spare time ran a skating rink in his backyard for the village's youngsters, died February 22 after an illness of several weeks. He was 69 years old. Mr. Noble started his ice business about 48 years ago. He had his own ice house, stocking it with blocks he cut from the pond which is now being used as a rink. About 25 years ago, he changed operations and started buying manufactured ice. He had been retired for about a year.

ALBERT L. BROWN, retired refrigerating engineer of Dallas, Tex., died February 13 after an extended illness. He was 87 years old. Mr. Brown, a native of New York City, had lived in Dallas 50 years since coming from Little Rock, Ark. Before coming to Dallas he had been in the refrigerating and grocery business in Little Rock. He retired from his work as a refrigerating engineer in 1930.

HENRY J. WAGNER, former owner of the Diamond Ice Company, Braddock, Pa., died February 22 at his home. He was chairman of the board of the First National Bank of Braddock at the time of his death. He also was a board member of Braddock General Hospital, Braddock Board of Health and the Rotary Club. He was 87 years old.

HAAKON BERG, 63 years old, a refrigeration engineer, formerly in Alaska, died recently at Seattle, Wash., after a brief illness. Born in Trondheim, Norway, he went to Alaska from Norway at the outbreak of the First World War in Europe, and remained in Petersburg, Alaska, for a number of years, being refrigeration engineer with a cold-storage company.

H. LEE STERRY, executive assistant to Cloud Wampler, president of the Carrier Corp. was killed in an airplane crash at Elizabeth, N. J. January 23. He was 50 years old. He leaves his widow, Mrs. Wilamae Sterry and a daughter in college.

CARL U. SPRIGGS, manager of sales for Carrier Corp. was killed in an airplane crash at Elizabeth, N. J. January 23. He was 44 years old. Previously he had been with General Motors Corp. for six years. He leaves his widow, a son and a daughter.

PATRICK J. O'DONNELL, general superintendent of the Jefferson Ice Company, Chicago, Ill., died February 27 at the Wesley Memorial hospital following a long illness. He was senior vice commander of the Illinois American Legion and had been a member of the American Legion for 30 years.

JOHN F. CHESTER, director of public relations for the Carrier Corp. was killed in a wreck of the American Airlines Convair at Elizabeth, N. J. January 23. He was 45 years old. Previously he was general business editor of The Associated Press. He leaves his widow, Margaret, and five children ranging in age from 12 to less than a year.

GUSTAVE C. YOUNG, superintendent of cold storage at the Port of Seattle, Wash., died January 9 in a hospital after a brief illness. Mr. Young was born in Sweden and came to the United States in 1889 and to Seattle in 1930 from Chicago.

JOHN L. YOUNGER, retired ice plant owner Searcy, Ark., died January 30 in a local hospital after a long illness. He was 91 years old. He owned and operated the Searcy Ice Co. plant from 1891 until his retirement in 1928.

MANUFACTURERS' NEWS

Carrier Executives Named To Fill Vacancies

THE Carrier Corp. has named three executives to replace those killed in an Elizabeth, N. J. airplane crash. John M. Bickel, who has been assistant sales manager with headquarters in New York, has been named manager of the dealer sales division. Ralph Ebbert, director of personnel services, is now acting director of public relations, and Russell H. Gray, formerly of the Atlanta sales office has been named assistant to the vice president.

Vending Machines

THE following installations of vending equipment have been reported:

Los Angeles, Calif. — California Consumers Corporation report a recent installation of S & S ice vending equipment.

Westmoreland, Calif.—S & S ice vending equipment has been installed by Layall Petroleum Company to operate in conjunction with service stations in this area.

Abilene, Kans. — Bell Springs Creamery Company recently installed new S & S ice vending equipment.

Wichita, Kans. — Steffens Dairy Food Company has installed another S & S ice vending station.

Delhi, La.—Delhi Ice & Fuel Company is now operating an extra large S & S ice vending station. The unit was specially designed for greater storage capacity in addition to dispensing three different types of ice.

Snow Hill, Md.—Davis Ice & Coal Company report installation of a new S & S ice station.

Bartelsville, Okla.—Crystal Ice & Frozen Food Company of this city is now operating an S & S ice vending station.

Yakima, Wash.—Artificial Ice & Fuel Company has installed another S & S ice vending station; making the sixth unit now serving the Yakima area.

Nash-Kelvinator Earnings

FOR the three months ended December 31, Nash-Kelvinator Corp. reported net earnings of $1,034,024 after federal and state income taxes. This is the first quarter of the company's 1952 fiscal year. The earnings, equal to 23 cents a share, compare with $5,081,101 or $1.17 a share for the corresponding period a year ago. Sales for the quarter amounted to $71,766,558 compared with $101,331,105 for the comparable period a year ago.

Prager Joins Distributor Of Hussmann Line

DANIEL A. PRAGER, formerly Director of the Personnel Training and Marketing Department of the National Association of Ice Industries, Washington, D. C., recently became affiliated with a leading distributor for the Hussmann line of commercial refrigeration equipment. Mr. Prager is general sales manager of the Price Refrigeration Company which serves the Greater Washington, D. C. area and surrounding territory.

ICE SUPPLIES

- PAPER BAGS
- CANVAS BAGS
- ICE PICKS
- ICE TONGS
- TANK SUPPLIES

EQUIPMENT

- SHAVERS
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**Stainless Steel Crusher Housing (Optional)*

"Complete line of Tools and Supplies for the Ice Industry"

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MORE PROFIT IN ICE
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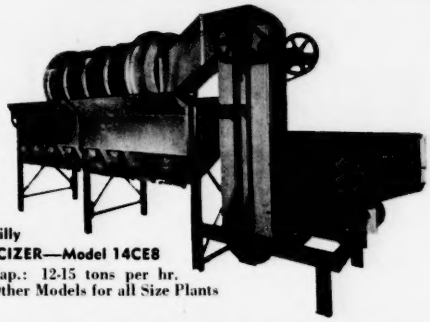

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ICIZER—Model 14CE8
Cap.: 12-15 tons per hr.
Other Models for all Size Plants

Ice—*properly sized*—brings premium prices—more dollar profit. It brings additional sales and profits the year 'round. The new engineering features in Lilly ICIZERS and CRUSHERS—*Stainless Steel Breaker Housing (Optional), reduced drum speed, etc.*,—give you even more economical and better controlled production.

Write *today* for complete information and prices on—

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ADHESIVES FOR FASTEST APPLICATION ON BIGGEST JOBS
Ceilings, Walls and Floors

One of the largest cold storage plants in the world* used upwards of 50,000 gallons of LAYKOLD® products for floors, walls and roofs.

Only two men were needed to spray cold adhesives for vapor barriers and to hold insulation.

Bulk delivery and mobile spray units cut costs to a minimum.

Investigate Laykold Cement, Insulation Adhesive, and Weathercoat for "cold" jobs—large or small.

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Oakland 1, Calif. Portland 7, Ore.
Washington 6, D. C. San Juan 23, P. R.

Fred W. Smith Joins Graham Refrigeration

THE Graham Refrigeration Products Company, Inc., of Springfield, has named as associate of Ray Graham, Fred W. Smith, former president of the Baker Refrigeration Corporation and the Air Conditioning and Refrigeration Machinery Association. The Graham Company is the New England agency for the Kramer Trenton Company and other refrigeration manufacturing companies.

Fred W. Smith

This company will handle Kramer's Heat Transfer products, in addition to the full line of Acme Industries' products of Dry-X Chillers and Heat Exchange equipment, Ebco Manufacturing Company's Water Coolers and Air Dryers, and Brewer Titchener Corporation's Freezer and Low Temperature Display Cases.

Mr. Graham will head the company's headquarters office at 1694 Main Street in Springfield and Mr. Smith will be in charge of the Boston office at 52 First Street, Cambridge, and the Portland, Maine office at 402 Forest Avenue.

Carrier Announces Protection Plan

A NEW low-cost five year protection plan on all Carrier self-contained Weathermaker air conditioning units installed since September 1, 1951 is announced by Carrier Corporation. The plan automatically covers all units shipped after February 15 and can be applied retroactively to September 1 upon payment of the protection cost.

The plan applies to year-round Weathermakers for conditioning residences and to Carrier's 3 to 15 hp self-contained models for commercial, industrial, and office use. It protects purchasers against major expense due to failure of the hermetic refrigeration motor compressor during the first five years of ownership. Original users will be entitled to repair or exchange of this assembly if it fails to function in normal service at any time during the period.

Creamery Package Elects New Officers

G. E. Wallis *E. B. Lehrback* *J. L. Brazee*

AT A meeting of the Board of Directors of Creamery Package Manufacturing Co., G. E. Wallis was elected chairman of the board of directors and chief executive officer. E. B. Lehrack was elected president and general manager and J. L. Brazee was promoted to director of sales.

Mr. Wallis joined the Creamery Package organization in 1916 and has served as president and general manager since 1933.

Mr. Lehrack was first associated with the company in 1919 for eight years, and afterwards returned to the firm's general offices in May, 1935 as assistant to the president. In February, 1937 he was elected vice-president in charge of sales, and has served as executive vice-president for the last two years.

Mr. Brazee joined CP in 1940 supervising sales on the West coast; in 1948 he was moved to the general offices and in 1950 was appointed director of machinery sales.

Baker Corp. Entertains Visitor From Thailand

ANOTHER prominent visitor signed the Guest Book of Baker Refrigeration Corp. Monday, March 3 when Nai Tuanthai Bamrajarinpai came to South Windham, Me. ("Nai" is our counterpart for "Mister" and he asked them to call him "Twanteye".) Tuanthai is in the States regarding a $1,750,000 food freezing plant to be built in Bangkok. This plant will have complete fish handling, freezing, storage facilities, and ice making. He is head of the Fisheries Technology Section of the Department of Fisheries of the Government of Thailand (formerly Siam.)

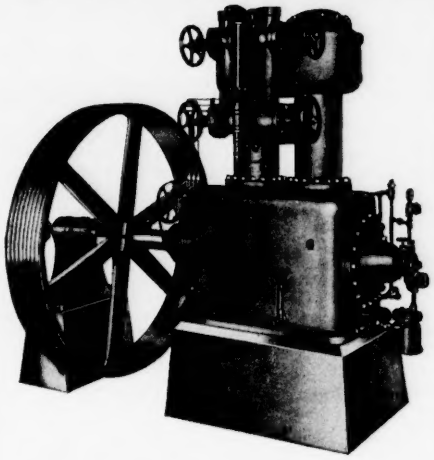
Tuanthai is unmarried, lives in the City of Bangkok, and was graduated from the Japanese School of Fishery with a degree of Bachelor of Science in 1941. He is well known in his homeland as a leading ichthyologist.

The food freezing plant is being built under the auspices of the Economics Cooperative Administration formerly known as the Marshall Plan and now known as the MSA, Mutual Security Administration, under the direction of Averill Harriman. When the plant is completed Tuanthai will be manager of the enterprise in Bangkok.

Nai Tuanthai spent two weeks in the Boston area examining refrigeration installations and two weeks at the Little Falls and Mallison Falls plants in South Windham, Me., observing how Baker refrigeration compressors are made and assembled.

Austin Ford, Jarvis Engineering Co., Boston, Mass.; Tuanthai Bamrajarinpai of Thailand, and Mark E. Mooney, vice president in charge of sales, Baker Refrigeration Corp., South Windham, Me.

Sterling



YOU CAN DEPEND ON STERLING!

You can depend on Sterling to perform the job it is designed to do. More than 50 years experience in the manufacture of refrigeration equipment, sincere effort and constant engineering progress, give us the "know how" that enables us to produce equipment that will DO THE JOB!

You can depend on Sterling for delivery when needed. To meet the ever increasing demand for this dependable equipment, production facilities have been expanded through the years and we are now able to make immediate delivery on most models. Check over your requirements NOW . . . and look into the Sterling line.

See your nearest Sterling distributor.

Most Models Are Available For Immediate Delivery

REYNOLDS MANUFACTURING CO.
SPRINGFIELD . . . MISSOURI.

WATER

FROM THE GROUND BELOW YOU

IN single or multiple units, Layne well and pump installations produce tremendous quantities of water at extra low cost. High efficiency designing, precision building and advanced methods of installation make Layne wells and pumps a highly practical and fully justified investment. Layne does the job complete; drills the wells, furnishes all casing, shafting, pumps, motors and sand screen. After complete testing, the system is delivered to you in perfect operating order.

For further information, catalogs and engineering data, address

LAYNE & BOWLER, INC.
General Offices, Memphis 8, Tenn.

Layne WATER SUPPLY **WELLS & PUMPS**

in
Cooling Towers, Condensers—
Wherever Water Is Used

Use Wright Water-Conditioning Chemicals in refrigerating and air-conditioning equipment — wherever water is used—to control scale, corrosion and bacteria. Increase the efficiency and life of equipment and be assured of long, maintenance-free performance.

WRIGHT CHEMICAL CORPORATION

Wright CHEMICALS

Specializing in Water Conditioning
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633 West Lake Street, Chicago 6, Ill.
OFFICES IN PRINCIPAL CITIES
Sole Distributor of Nelson Chemical Proportioning Pumps

Predicts Growing Volume For Air Conditioning

AIR conditioning, which is celebrating its fiftieth anniversary this year, achieved the status of a billion dollar industry for the first time in 1951, according to Cloud Wampler, president of Carrier Corporation. He predicted that the next half century will see the industry increase at least five fold over today's levels to reach a volume of five billion dollars annually.

Mr. Wampler addressed a luncheon meeting of stockholders held at the Waldorf-Astoria and commemorating the anniversary of the world's first air conditioning installation by Dr. Willis H. Carrier. Honored at the ceremonies was William J. Volz, president of Sackett & Wilhelms Lithographing Corporation, in whose Brooklyn plant the pioneer system was installed in 1902.

At the annual stockholders meeting which preceded the luncheon, two new directors of Carrier Corporation were elected. They are Herbert E. Smith, former Chairman of the Board of United States Rubber Company, and William Bynum, Carrier executive vice president.

"From a volume amounting to only a few thousand dollars in 1902, the industry founded and pioneered by Dr. Carrier and his associates has grown to a point where last year expenditures for air conditioning of all types exceeded $1,000,000,000 for the first time," Mr. Wampler told the meeting. "And while it is impossible for anyone to do any accurate fifty year forecasting, I feel sure that before the next half century passes air conditioning will be a $5,000,000,000 business.

"It is the pressure of competition, the spur to greater productivity and employee efficiency which today is creating a vast market for air conditioning in multi-story buildings, in commerce and in industry. And the day will come when people will no more think of tolerating the discomforts of summer heat in their homes than they now tolerate the cold of winter."

Analyzing the growth prospects, immediate and long-range, for various fields of air conditioning, Mr. Wampler commented on four principal areas, as follows:

1—Great and growing demand for air conditioning for multi-room, multi-story buildings such as offices, hotels and apartments is not in the category of tomorrow's prospect but is actually here today.

2—The market for complete home air conditioning is often held before us as the greatest area for growth. Certainly this has great potentials. But with respect to small homes this market is still some distance in the future. Prices will have to be still further reduced before the potential can be fully realized, and I am sure they will.

3—Another large field in which substantial strides have been made but which still holds even larger potentials is the market for self-contained units as well as installed systems in the stores and shops which literally dot the nation by the tens of thousands.

4—The application of air conditioning for industrial processes is a field too seldom recognized by those who study the future of our industry. Yet air conditioning had its start in solving a production problem and it has become an important tool in scores of industries.

What's New

MACHINERY
APPLIANCES • PROCESSES

Slide Chart Shows Relief Devices Needed

AN EASILY operated slide chart which tells at a glance the proper selection of relief devices required in accordance with the ASAB9.1-1950 Code for Mechanical Refrigeration, has been issued by Henry Valve Company, Melrose Park, Ill.

One side of the computer determines the discharge capacity, in pounds of air per minute, and number of relief devices required for all types of refrigerants in vessels of various sizes. With discharge capacity of the vessel determined in pounds of air per minute, the other side of the computer automatically selects, in terms of code requirements the correct size and type of Henry Relief Valve and shows the maximum length of discharge piping permitted on the installation.

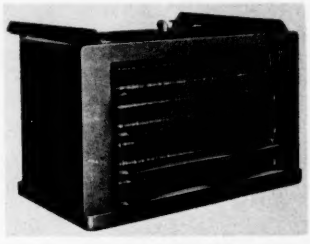
With this computer the Henry Valve Company also furnishes a pocket folder for the selection of relief devices for mechanical refrigeration systems in accordance with the Chicago Municipal Code. Distribution to engineers, contractors and servicemen is made free of charge through any wholesaler of Henry Products, or direct from the factory.

New Henry Valve Slide Chart

New Heavy Duty Unit Cooler

A NEW heavy duty, ceiling mounted, Conditionaire Rapid Freeze unit cooler has been announced by The Home Conditionaire Unit Co. Sales Division of The Howe Ice Machine Co.

These Rapid Freeze units are especially advantageous in cooling below 30 F., it is stated, but can be used for every type of storage and processing work. Special features are: heavy duty design, extra large motors, coil with permanent fin contact, large prime (tube) surface, rapid defrost-



New Heavy Duty Home Unit Cooler

NOW . . .
YOU CAN AFFORD VENDING EQUIPMENT

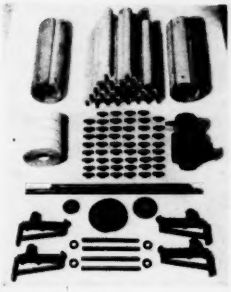
ESKIMO PRE FABRICATED
ICE VENDOR KITS

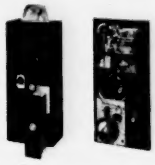
SAVE $100.00
Save On Freight
Save On Labor

New
ESKIMO Pre-fabricated VENDER KITS

The first "Ready-to-Assemble" Ice Vending Equipment ever offered the Ice Industry.

Your Plant personnel can cut vendor costs by assembling the Eskimo Ice Vendor Kit—and you save on freight and labor.





The National Rejector's Coin Mechanisms have a separate cash box, multiple coin handling (5c-10c-25c) rejects bent or counterfeit coins. Sale price can be changed easily with no additional parts or expense.

PROVED IN ACTUAL USE

Eskimo vendors have been developed and perfected by Ice Dept., Central Power & Light Co., Corpus Christi, Texas and have been in use over 6 years.

EXCLUSIVE VENDOR SELECTOR

Eliminate confusion — one location for 3 or more selections of ice. Saves in wiring cost of vendors. May be installed on your present vendors.

The Eskimo Kit is complete, with the exception of the lumber, wiring and metal for the delivery chutes. All these materials are available locally, which saves additional freight.
You receive the bearings, end drums, idling rollers, heavy belting, gear head motor, sprocket chains and National Rejector Coin Mechanism. Complete instructions for assembly and operation.

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ICE TOOLS AND SUPPLIES

WE CONTINUE YEAR AFTER YEAR
to make the kind of Ice Picks that will give YOUR customers satisfaction and build up GOOD WILL FOR YOU.

PRICE UPON REQUEST

VIVIAN MANUFACTURING CO. 4132-38 Folsom Ave., St. Louis 10, Mo.

QUALITY COILS FOR *ALL* APPLICATIONS

WELDED HEADERS, PIPE BENDS AND AMMONIA RECEIVERS

Whether your next job be for a single bend, or coil or complete Piping system, Chicago Nipple can supply your requirements. Experienced workmen, practical engineers, and modern equipment reflect the quality of our products.

Coils are of selected ammonia pipe—all joints are electrically welded—checked under water with an air pressure of 300 pounds to guarantee tightness.

SEND DRAWING OR BLUE PRINT FOR QUOTATION

CHICAGO NIPPLE MFG. CO.
1997 Clybourn Ave., Chicago 14, Ill.

ing, four adjustable deflectors, and high tonnage capacity. These units are said to be ideal for low temperature work, such as quick freezing, freezer storage, and ice cream hardening rooms.

The housing is fabricated from copper bearing galvanized, heavy gauge, sheet steel. The exterior is finished in synthetic enamel with rustproof interior finish to all surfaces. The cooling coil is a special headered all-steel coil, equipped with steel fins, welded and hot galvanized after fabrication. This coil is suited to all refrigerants. Four adjustable deflectors are used to discharge cooled air when desired, and are standard equipment. The unit design permits the use of either a thermo valve or low pressure float control when used with ammonia. For Freon, the thermo valve control is recommended.

Two totally enclosed, continuously operating electric motors, each 1/6 hp-100 volt, 60 cycle, 1750 rpm, single phase, power the fans. If desired, 220 volt, 60 cycle, single phase motors can be substituted without extra charge. Two 16 in. D fans, four blade aluminum style, provide high efficiency circulation with quiet operation. A built-in defrost pan is included as standard equipment, for use with no frost solution, but the manufacturer recommends using hot gas, automatic defrost, wherever possible.

Pre-Fabricated Ice Vendor Kit

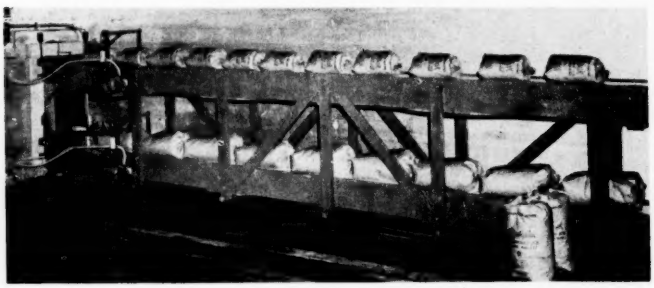
THE first ready-to-assemble ice vending equipment offered the ice industry has been announced by Ballard Sales Co., Fort Worth, Texas. The "Eskimo" Vendor Kit is prefabricated and ready for assembly by ice plant personnel. It is especially adaptable for the small ice plant.

Joe Ballard, Southwest distributor for many types of ice plant machinery and equipment, says: "This new packaged Vendor Kit saves two ways —first, on freight because the Kits are packed in boxes and take a cheaper commodity rate. Second, the ice plant operator can use his permanent employee's spare time to assemble and install this new money-saving Vendor."

These Vendor units were developed and perfected by the Ice Department of Central Power & Light Co., Corpus Christi, Texas, and have been in use by this company for over six years.

The selector unit, developed by R. A. O'Neill of C. P. & L., eliminates confusion to the customer by having one location for three or more selections of ice. A lighted picture panel shows an actual picture of your ice selection. One coin unit will easily handle eight vendors. The selector is so wired that a customer can get only one package of ice, even though there are several choices at one price. Each unit is complete with National Rejector's Coin Mechanisms with separate cash box and multiple coin handling (5c-10c-25c).

The Eskimo Kit is complete with the exception of lumber, wiring and metal necessary for the delivery chutes. These items can be secured locally at a saving on freight. Bearings, end drums, idling rollers, heavy-belting, gear head motor, sprocket chains and coin mechanisms are included in the Kit, packaged ready for shipment.



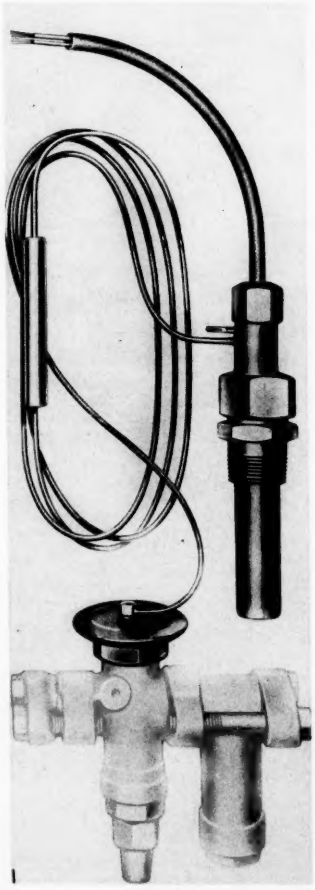
New Eskimo vendor kit installed in an ice plant

Level Master Control For Flooded Systems

A NEW Level-Master control for flooded systems is announced by The Sporlan Valve Co., St. Louis, Mo. It is offered as a positive liquid level control device for ammonia, Freon-12 and Freon-22 applications, combining a liquid level control and refrigerant expansion device into one unit.

The device comprises a standard Sporlan thermostatic expansion valve equipped with the new Level-Master element. The element consists of a conventional thermostatic element and a low wattage heater. The heater provides an artificial superheat to the thermostatic charge. As the liquid level drops, the heater temperature increases the pressure in the thermostatic element thereby opening the expansion valve which feeds refrigerant into the low side. When the liquid level rises and makes contact with the bulb, the refrigerating effect overcomes the heater and the valve throttles. Tight closing is assured during the off cycle, when the heater is off and liquid is in contact with the insert bulb.

It provides a modulated flow and maintains practically a static liquid level in the low side, according to the manufacturers. The insert bulb of the element which controls the liquid level has no moving parts. It does not operate through use of a mechanical float device of any kind. It may be installed either vertically or horizontally. The Level-Master control is not affected by turbulence which might occur in the low side. The effect is merely that of striking a mean level and holding that level constant. There is no current flow through the refrigerant nor is this an electronic device.



Thermostatic expansion valve equipped with new Level-Master element.

Installation is simple and economical. The insert bulb is placed directly in the shell, accumulator or liquid leg for direct contact with the refrigerant. Existing hand and float control systems can be easily and economically modernized and made automatic.

New Air Purification Device Removes Odors

AT THE December meeting of the Washington State Horticultural Association a new type fruit storage air-purification unit was shown. The new machine, known as the Gasorber,

Front view of Gasorber shows heavy-duty casters, eye hooks for ceiling installation, and squirreled type blower.

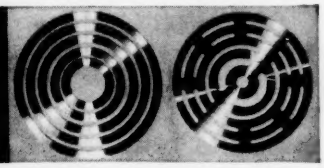
is a development of the Crop King Company of Yakima, Wash. Previously, all such equipment has been built in the Eastern United States and marked interest was shown in the construction of this new Western-built machine. This equipment is offered as an answer to the problem of removing harmful gases and odorous elements found in cold storage rooms. Apple people, particularly, are aware of the necessity of maintaining and promoting quality of their product.

Comments heard at the Wenatchee meeting indicated approval of the new type carbon cell employed. The new cell structure eliminates many of the old problems of maintaining efficiency over a long period of time and excessive cost of carbon reactivation. An entirely new principle of carbon filtering has been adopted. The new carbon unit, known as the "Super-Cell," provides a far greater air contact with the basic carbon while delivering a considerably increased volume of filtered air. Plant tooling for the new unit has been a considerable task since it does not utilize standard round cannister or flat plate type filters.

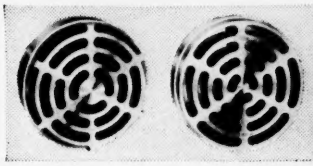
The Gasorber is being produced in four models of varying capacities to accommodate various sized warehouse operation and for home, office and other air recovery installations. The manufacturer has announced a thirty day delivery schedule for all four models of the unit.

Removal of the rear panel exposes the lower "Super-Cell" carbon unit which provides simplicity and efficiency.

Compressor Efficiency



has no equal in the race for greater output



VOSS VALVES have no equal

for they assure maximum compressor efficiency

It is a matter of record that everytime an ordinary compressor valve is replaced with a specially designed VOSS valve, the immediate result is increased efficiency and greater output . . . and this record covers thousands of installations, as letters and reports testify.

VOSS VALVES and PLATES are made to specifications for all types of air, gas and ammonia compressors; from 1 to 16" in diameter and for pressures from 3 to 4,000 pounds and for speeds from 110 to 1750 rpm.

VOSS VALVES and PLATES are NOT STAMPED; they are milled and machined for perfect fit; of finest heat treated alloyed steels; they are ductile; resist fracture, high temperatures and corrosion; withstand fatigue; won't work-harden, chip, splinter, crack or score cylinder walls.

INCREASE EFFICIENCY AND OBTAIN GREATER OUTPUT . . . send us the name, bore, stroke and speed of your compressors. Our detailed proposal will be sent without obligation.

VOSS VALVES and PLATES ASSURE

- Quiet, vibration-free operation
- 20 to 60% more valve area
- Less power consumption
- Low pressure loss
- Normal discharge temperature
- Lower operating costs
- 35% more work

J. H. H. VOSS VALVES REG. U.S. PAT. OFF.

J. H. H. VOSS CO. INCORPORATED

783 EAST 144th STREET, NEW YORK 54, N. Y.

Mechanically Equipped Refrigerator Cars

BEGINNING this Spring, meat will be hauled regularly in mechanical refrigerator cars for the first time, according to a joint announcement by George M. Foster, president of John Morrell & Co., Ottumwa, Iowa meat packers, and J. A. Numero, president of Thermo King Railway Corp., Minneapolis, manufacturers of transport refrigeration equipment.

Arrangements have been made to put 25 Thermo King cars in service between Morrell's mid-western plants and points in Florida, and they will be ready for use before warm weather arrives. Installation will be made in newly-built cars which the meat packing firm is leasing from the Mather Stock Car Co. of Chicago. The equipment is completely automatic, and any desired temperature can be maintained by setting a dial. The Morrell firm, oldest and fifth largest of America's meat packers, is the first to adopt the new gasoline-powered units for refrigerating railroad cars.

To date there are only 172 cars in the nation equipped with mechanically refrigerated units. Most of these are used for the transportation of frozen foods. No other meat packing companies have any mechanically refrigerated railroad cars at this time.

Under this agreement, Morrell will pay for the use of the cars on an elapsed-time basis, and all maintenance work will be done by Thermo-King Railway Corp. at Sioux Falls, S. D., where, according to Vice-President Ralph W. Porter, one man can easily handle the required maintenance for units servicing the 25 cars.

For the Morrell runs only one unit will be used, although all the cars will be built to accommodate two units and for certain types of return runs Thermo King may elect to place two in operation. In the event that mechanical failure of any kind occurs en route, Thermo King dealers at strategic points will merely exchange units.

As one of the early users of the Thermo King truck refrigeration system, Morrell president Foster has watched its development in the railroad field, and is now ready to go ahead with it on a large-scale basis. In coming months this installation will constitute the largest operational use of Thermo King railway refrigeration equipment, and is expected to demonstrate its superiority conclusively. Rigidly controlled statistical records will be kept by Morrell as well as the manufacturer, and detailed findings as to cost of operation and efficiency of temperature control will thus be made available.

In another application of this system, the Bellows Falls Co-operative Creamery has used 11 mechanically equipped cars to ship milk from Vermont to Boston. The Fruit Growers Express has a similar number of cars in service, used chiefly to haul frozen citrus concentrate.

The refrigerating mechanism is a self-contained unit installed at one end of the car, consisting of a gasoline engine, compressor, cooling coil, air circulating fan and automatic controls. Freon is used as the refrigerant. The floor racks and wall flues of the car serve as air ducts. Every five hours the unit defrosts automatically.

Torque Overload Control

A DEVICE for protection against overloads and sudden interference with normal operation of motor operated valves, speed reducers, flexible cable drives, loading devices, and all types of motor driven equipment, is applied between driving and driven members. It can be adjusted by torque control screws to the exact specified torque desired and can be made to disengage as low as one in-lb as well as to carry any desired load. This overload control will operate instead of a shear pin coupling, making the disassembly of equipment unnecessary. Moving parts are hardened and ground. The unit is sealed and needs no lubrication. Various models are available.

Easier and Cheaper with

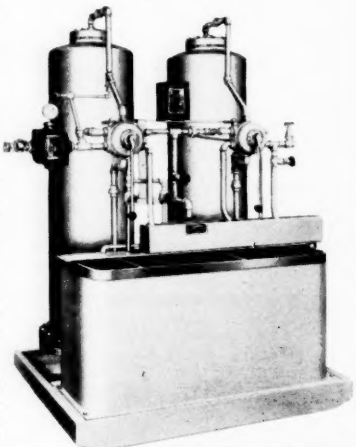
INDUSTRIAL Water Demineralizer

It's worth looking into . . .

The demineralization of water is not something new. It is used in the food industry, in the chemical and other industrial processing where chemically pure water is used in quantity. The very low cost warrants your looking into it.

Here are some of the advantages you get with an INDUSTRIAL demineralizer in ice making. Since the dissolved mineral salts in ordinary water are removed in passing through the ion-exchange resins, core-water removal and replacement is unnecessary. Losses due to cracking are greatly reduced. Freezing at the lower brine temperature increases daily yield. And the bulk of the cake of ice is clearer—your customers will notice that.

If you will send us an analysis of the water you are using, the quantity you need, and at what rate (gallons per hour) we will send you information on INDUSTRIAL demineralizers, estimate of costs, performance data, etc. Better do it now.



A typical two-bed INDUSTRIAL Water Demineralizer. Standard models available with capacities up to 1000 gph. Special units of any capacity engineered to requirements.

FILTERS Pressure Type · PUMPS Centrifugal · CORROSION TESTING APPARATUS Salt Fog • Humidity

INDUSTRIAL FILTER & PUMP MFG. CO.

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Vulcanized Linings • Molded Products

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DIMCO CAST ALUMINUM FIN EVAPORATING COIL

★ *Saves Space*

★ *Saves Weight*

★ *Saves Cost*

CAN BE USED WITH ANY REFRIGERANT

Manufactured by

DETROIT ICE MACHINE COMPANY

2615 Twelfth St., Detroit 16, Mich.

DIMCO Fin Coils solve low headroom problem
View of Mezzanine Lard Storage Room
Peters Sausage Company, Detroit, Mich.

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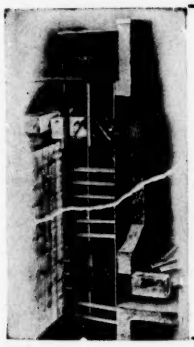

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Double Gig Ice Hoist
Fast - Sturdy - Dependable -

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Truck Model—Gas Engine Driven

INCREASE YOUR PROFITS BY DELIVERING FRESHLY BROKEN ICE IN SIZES FOR ALL NEEDS RIGHT AT THE DOOR

- Instantly Adjustable Grate
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- Easy Starting Briggs & Stratton Engine

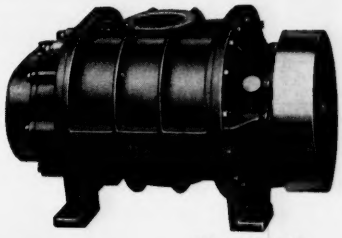
Model WP-76

Write for descriptive circular

MICRON, Inc., Dept. I BETTENDORF IOWA

To be SAFE instead of sorry, compare these essentials... V-P-L VOLUME PRESSURE LOW POWER COST

Since the early days of manufactured ice, operators have enjoyed the satisfying performance of R-C Rotary Positive Blowers. Regardless of the season, they know that these simple, sturdy units will deliver required air to the cans to maintain continued production and profits. Send for Bulletin RC-1247 for details and proof.



REG. U. S. PAT. OFF.

Roots-Connersville Blower Corporation
524 Columbia Avenue, Connersville, Indiana

ROOTS-CONNERSVILLE BLOWER BUILDERS SINCE 1854

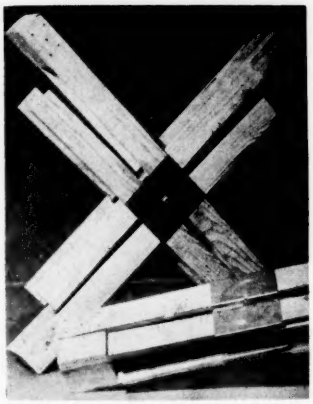
ONE OF THE DRESSER INDUSTRIES

Adjustable - Collapsible Pallet Announced

A NEW adjustable-collapsible pallet is being introduced by the Spring Wood Products, Inc., Geneva, Ohio. This pallet, according to descriptive literature furnished by the company, is adaptable for any materials handling pallet job and adjustable to handle any size and shape of load, and then may be folded to compact storage size when not in use. It can be used with fork lift or hand lift trucks.

Two-way adjustment varies the angle between the legs or slide legs to desired spot through steel guide plates. Pallet can be locked in any position between fully collapsed and fully extended by eccentric locking lever in center. Three different sizes permit adjustments ranging from 24x24 in. to 72x72 in. It collapses to size one-fifth that of open pallet, down to as low as 9x6x42 inches.

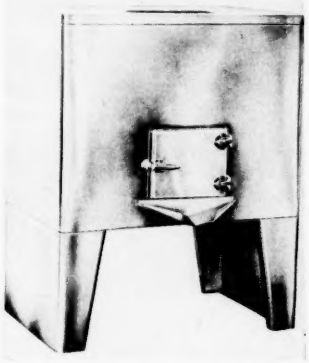
According to the manufacturers, it handles weights up to 3000 pounds, depending on shape and length of adjusted pallet. Center stud connected with locking lever is threaded on bottom for tension adjustment. Great rigidity in center of pallet formed by channels and angles in the guide plates. All of the legs are identical and interchangeable, can be repaired with commercial size lumber if damaged. Its returnable feature makes of it a low-cost item.



New Spring Wood Pallet

Ice Storage Bin

AN ICE storage bin designed for large capacity is being made by the Bin-So-Vi Corp., New Rochelle, N. Y. It provides a means of maintaining an adequate ice supply at all times, holding both crushed and cube ice. It has a pitched floor to direct water to drain, and door openings are sufficiently large to allow fast removal of ice and provide access to machine thermostat. Bins are fully insulated. Five different models are available. Variations include double-sliding doors in a model with solid, black synthetic enamel base or styles mounted on legs with separate doors for cubes and crushed ice. All doors are provided with laminated plastic breaker strips to prevent sweating.

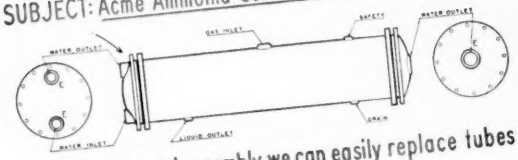


Bin-O-Matic storage bin for cubes or crushed ice.

Pages from an ENGINEER'S NOTEBOOK

MEMO: Purchasing Dept.

SUBJECT: Acme Ammonia Condensers



1. With the lock nut assembly we can easily replace tubes ourselves, when necessary.
2. Refrigerant connections are of forged steel—insures longer wear.
3. Shells are of seamless steel pipe. Wall thickness varies with the diameter. Should last a lifetime.
4. All condensers are designed constructed and tested to meet A.S.M.E. requirements.
5. Large variety of models and head combinations make possible the exact selection for a particular need.

RECOMMEND WE SPECIFY ACME INC.

MEN who know always specify Acme

In the air conditioning and refrigeration business the men who are really in a position to investigate a product and its capabilities ultimately choose Acme units to fill their cooling needs. Acme has been in the business since 1919 and in that time has developed a complete line of top quality products. Write a letter today for a custom-made product to fill your needs.

Address Dept. IR

ACME PRODUCTS

ACME INDUSTRIES, INC., Jackson, Mich.

AIR CONDITIONING and REFRIGERATION DIVISION

Continuously serving the air conditioning and refrigeration industry since 1919

THE BUYERS DIRECTORY

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Vogt Machine Co., Henry, Louisville, Ky.

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Frick Co., Waynesboro, Pa.

AIR CONDITIONING EQUIPMENT
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Carrier Corp., Syracuse, N. Y.
Frick Co., Waynesboro, Pa.
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Niagara Blower Co., New York, N. Y.
Vilter Mfg. Co., Milwaukee, Wis.

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Howe Ice Machine Co., Chicago, Ill.
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Kehoe Machinery Co., Inc., R. P., Ridgefield Park, N. J.
Reynolds Mfg. Co., Springfield, Mo.
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.

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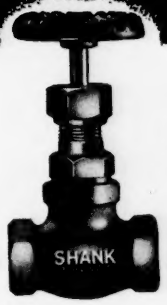
ALWAYS DEPENDABLE!



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Highest grade non-porous metal—full size ports—clean cut threads. Back seated stem — Shank design base—perfect alignment. Long life packing ring.

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All-Steel Construction. Automatic shut-off of liquid in case of glass breakage. Composition packing rings give long life, no-leak seal.

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Est. 1858

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FAST, ECONOMICAL CRUSHER
Saves Time and Labor Costs!

The new Bateman "Big Chief" Crusher is 50 lb. block capacity. Completely galvanized. Direct flywheel drive—no gears. Shaft diameter is 1-11/16". Self aligning ball bearings, 2 hp motor, with 3 groove pulley and V-belt. Castings are heavier and more durable. Will grind 50 lb. blocks with grate closed in 10 seconds, with grate wide open in 6 seconds. New design in hopper so the block of ice is held in a wedge so teeth can get a firm bite, eliminating ice chattering on drum. Holds snow to absolute minimum.

Price: $335.00 less motor, F.O.B. Mineral Wells, Tex. 2 hp, 1 phase, mtr. 170.80 2 hp, 3 phase mtr. 101.20.

Bateman
Ice Processing Equipment
Mineral Wells, Texas

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AMMONIA COMPRESSORS

Wolf Linde
Est 1880

FREON VALVES UP TO 12"

AMMONIA VALVES AND FITTINGS

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4849 West Grand Avenue Chicago 39, Illinois

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Detroit Ice Machine Co., Detroit, Mich.
Enterprise Equipment Corp., Yonkers, N. Y.
Frick Company, Waynesboro, Pa.
Howe Ice Machine Co., Chicago, Ill.
Kehoe Machinery Co., Inc., R. P., Ridgefield Park, N. J.
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when you repair your floors with **PERMAMIX**

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Here's all you do: Clean hole in any type floor, spread primer supplied in drum, fill in with PERMAMIX, tamp and dust with cement or floor dust, resume traffic immediately. It's that easy, for PERMAMIX feather edges and no cutting or chipping is required. No skilled labor is necessary, you need no special equipment, you have no mixing, waiting or production delays when you repair or patch your floors the easy, fast PERMAMIX way. Comes in handy, durable 50 lb. net weight drums.

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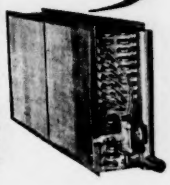
Cent. 6-1785

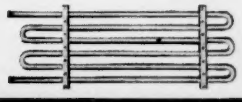
REMPE

Pipe Coils
Fin Coils
For Refrigeration, Air Conditioning, Heating



Coils and Bends of any Metal, Size or Design. Engineered to your requirements. Designed and built for longest life and the least maintenance.

Send your problems to us for engineering assistance.



HEAT TRANSFER EQUIPMENT
REMPE CO.
Founded 1904

REMPE COMPANY
348 N. Sacramento Blvd., Chicago 12, Ill.

SERVING THE ICE INDUSTRY FOR 20 YEARS

Dependable . . Automatic . . Refrigerated

S&S ICE VENDING STATIONS

AND ICE VENDING EQUIPMENT

Write, Phone or Wire for Full Details and Prices!

S&S Vending Machine Co.

670 LINCOLN AVE., SAN JOSE, CALIFORNIA

WEATHERPROOFED ICE SIGNAL CARDS

Coated Both Sides With Paraffine

ANY COLOR

ANY SIZE

We Make Any Design of Ice Signal Card

Send In Your Individually Designed Cards for Quotation

Write for Ice Signal Card Circular and Prices

Index Coupon & Supply Co.

LaPorte, Indiana

THE BUYERS

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(See Ice Making and Refrigerating Machinery)

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MASKA, AMMONIA
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Ohio Galvanizing & Mfg. Co., Niles, Ohio

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Texas Co., The, New York, N. Y.

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Rex Engineering & Sales Co., Oklahoma City, Okla.
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Texas Co., The, New York, N. Y.

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Frick Company, Waynesboro, Pa.
Vivian Mfg. Co., St. Louis, Mo.

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Chicago Nipple Mfg. Co., Chicago, Ill.
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Kehoe Machinery Co., Inc., R. P., Ridgefield Park, N. J.
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Philadelphia Pipe Bending Co., Philadelphia, Pa.
Rempe Company, Chicago, Ill.
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.

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Vogt Machine Co., Henry, Louisville, Ky.

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Vogt Machine Co., Henry, Louisville, Ky.

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Taylor Instrument Companies, Rochester, N. Y.

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Layne & Bowler, Inc., Memphis, Tenn.
Roots-Connersville Blower Corp., Connersville, Ind.

PUMPING MACHINERY—AIR LIFT
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Frick Company, Waynesboro, Pa.
Roots-Connersville Blower Corp., Connersville, Ind.
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S & S Vending Machine Co., San Jose, Calif.

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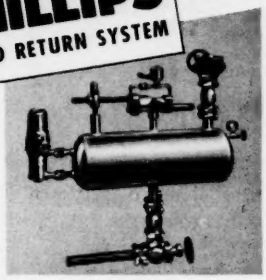
for Complete **COMPRESSOR PROTECTION** *install a* **PHILLIPS LIQUID RETURN SYSTEM**



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- **ASSURES** Economical Operation with Full-flooded Coils

Here's the proved method of protecting ammonia compressors from the damages of liquid slop-over. Phillips Liquid Return Systems effectively return refrigerant liquid from a suction line trap to the liquid receiver or liquid line—and, effect savings in operation. With a Phillips System, full flooding of coils is possible for maximum efficiency of evaporation and properly-conditioned suction gases are assured.

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For "Freon"— 1 to 1000 Ton Cap
For Ammonia— 1 to 2000 Ton Cap

Several types of systems are available: for Gravity, Injection Lift and Pressure Lift operation, in sizes up to 1000 tons. A Phillips Engineer will gladly help to select the right one to assure complete protection for you. Write today for full information in Bulletin LRS-50.

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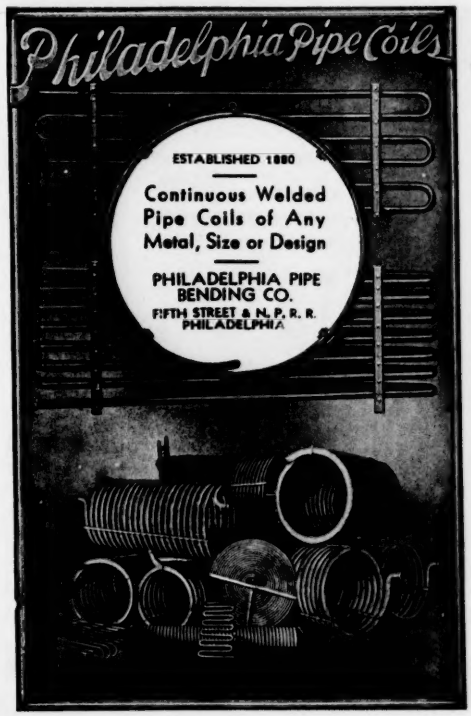
3255 W. CARROLL AVENUE • CHICAGO 24, ILLINOIS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Continuous Welded Pipe Coils of Any Metal, Size or Design
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FIFTH STREET & N. P. R. R.
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"King Zeero"

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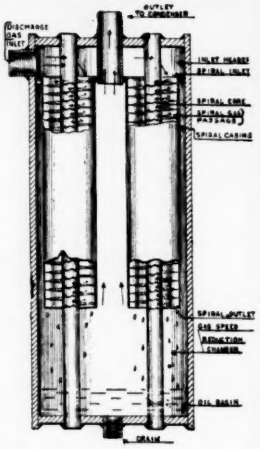
STOPS OIL FROM ENTERING CONDENSER RECEIVER AND LOW SIDE

Allows operation as was originally intended. Simple in operation — no parts to wear out — no screens, metal wool or any close screens to clog, raise discharge pressures and cut down capacity.

When used in connection with air compressors, water is also separated with the oil.



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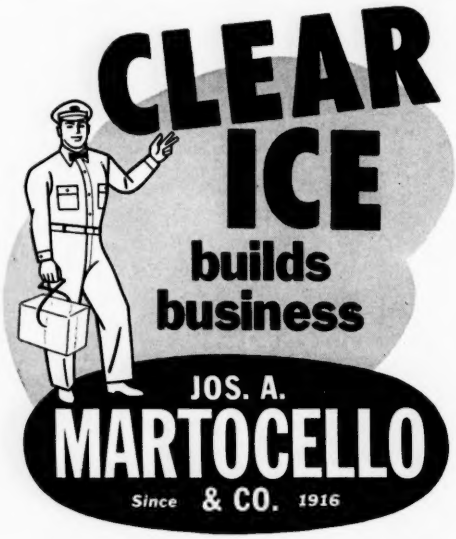

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5 GENERAL ELECTRIC 50 H.P. REFRIGERATION CONDENSING UNITS

Above equipment is V-belt driven, belt speed 920 RPM, 3 phase, type KG, 440 volt, 60 cycle. Included are 8 direct expansion cooling coils, complete with thermal expansion valves, dehydrator, water pumps, copper tubing, thermostatic expansion valves, liquid receiver and thermatrol. Has been well maintained and is in good condition.

ALSO PRICED FOR QUICK SALE
30-TON PAC-ICE MACHINE

Manufactured by Vilter Mfg. Co. This equipment was used less than six months and is in perfect condition.

All the above equipment was used in our work for the U. S. Engineers at Pickstown, S. D. Our part in this project has been completed and we plan to dispose of the refrigeration equipment immediately. Consequently, it is priced far below original cost.

Inquiries should be made direct to us. Write, wire or telephone 3-1881.

McCARTHY IMPROVEMENT CO.

602 Kahl Building **Davenport, Iowa**

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All classified advertisements are payable in advance. Except for Positions and Help Wanted classifications, this section is reserved exclusively for USED equipment.

RATES: $4.00 for 50 words or less; 70c for each additional 10 words or fraction thereof; $1 per line for bold face headings; $10.50 per inch for line listings.

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POSITION WANTED—As warehouse manager or similar responsible position in public or private refrigerated and/or general merchandise warehouse. Thoroughly experienced in all office and operational procedures. Excellent references. Address Box MR-12, c/o Ice and Refrigeration.

NEW MAIL SERVICE—Log analysis, bid analysis, operating check-up, shrinkage control advise. Get the most for your power input; 35 years experience. Reasonable fee; honest and accurate. Strictly confidential. C. Clark Fisher, Refrigeration Consultant, P.O. Box 348, Huntington Park, Calif.

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FOR SALE—ICE MANUFACTURING PLANTS WHOLESALE & RETAIL

Est. 30 years. in SE Texas. Grosses $85,000 yearly. Netted $30,000 last year. 2 plants and 16 sub-stations service a large region and are equipped with all necessary machinery. Real estate, equipment & misc. assets are valued at $204,000, but offered for $125,000. This exceptional offering is priced for immediate sale.

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150 TON ICE PLANT—OAKLAND, CALIF.
ENGINEERED FOR CHEAP PRODUCTION OF CAR ICE
29% OF PURCHASE PRICE WILL HANDLE

Consisting of, four 10x10 York compressors, two 175 h.p. synchronous motors, Crane (25 can pull), two 900 can steel ice tanks, 1800 cans, agitators, condensers. All other necessary equipment.

CALIFORNIA ICE CO.
806 Donahue St. Santa Rosa, Calif.

USED EQUIPMENT-wanted & for sale

WANTED

Used automatic ice making equipment, in good condition, such as Vogt, Flake Ice, etc., ammonia refrigerant. Ten to fifty ton units. State size, make, age and price. Also compressors for above equipment. Address Box FB-8, c/o Ice and Refrigeration.

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COPPER AIR INLET TUBES ON BOTH SIDES

300 brand new galvanized cans and 2,000 nearly new. Immediate delivery. Size: top—23" x 12", bottom—12½ x 10½", length—58". Manufactured by Knickerbocker Company, Parkersburg, W. Va.

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FOR SALE

1—50 ton Frick ice plant—27 can pull—evaporative condensers—may be inspected in operation.
1—150 ton York ice plant—13 can pull—equal to new.
1—12½x14½ York ammonia compresor, 225 r.p.m.
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1—8x8 York compressor 360 r.p.m., V-belt drive, 60 h.p. motor, capacity reducing valves.
1—7½x7½ York ammonia compressor, high speed.
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Type 50 F & E cubing machine, Gifford-Wood ice stacking machine—7 cakes high. Perfection "Special" ice scoring machine, 7½ h.p. low pressure blower.
1—100 h.p. G.E. synchronous motor, with coupling.

JOHN F. CARSON
2829 N. Broad t. Philadelphia 32, Pa.
BAldwin 9-8549

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10-30-50 ton ice plants.
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Self contained units, sizes 5 - 4 & 3 Yorks or Fricks. Motors and starters for all compressors. Condensers, brine coolers, cranes, can dumps, fillers, valves and fittings, etc.
Send us your requirements on any equipment needed.

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2 ORANGE ST., NEWARK 2, N. J.
Phone MItchell 3-7790

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Complete Ice Plants 15-75 Ton
Ammonia Compressors, 3" x 3" to 12"½ x14½"
Condensers, Cranes, Blowers, Scoring Machines, Ice Canes—Various sizes.
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- CONDENSERS—TRAVELING CRANES—PIPE — ICE CANS — NEW and Used

Write or call for complete list of new and reconditioned ice making equipment.

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With This NEW Improvement Niagara "No-Frost Method" puts you a big step ahead in trouble-free, automatic refrigeration or freezing

Niagara "No-Frost Method" keeps frost and ice COMPLETELY OUT of your cooling, chilling, freezing or cold storage.

It uses Niagara No-Frost Liquid Spray to keep frost and ice from ever forming. It gives you, automatically, refrigeration with no defrosting, and full capacity NEVER cut down by ice building up progressively on refrigeration coils.

Now, a NEW design No-Frost Liquid concentrator, using a new principle, takes away moisture as fast as it is condensed by evaporating it at low temperature —not boiling it away at high temperature. It has 14 times the capacity of the old method per dollar of investment — one concentrator will handle a battery of high capacity spray coolers.

This gives you more refrigeration at lower cost; less machinery in less space. You operate at high suction pressure, saving power and wear and tear on compressors.

The extra capacity and lower cost both for equipment and operating makes this method advantageous for every type of refrigeration use—both for freezing and for moderate temperatures—for large "live" loads as in meat chilling or in fruit and vegetable precooling — for rooms that are filled and emptied of product daily, such as milk rooms and terminal storage warehouses.

You get true trouble-free refrigeration . . . No brine . . . no salt solution . . . no dirt . . . no mess . . . It is entirely clean; you get rid of dirt and odors. You reduce both equipment and operating costs.

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If you need extra capacity . . . the Niagara "No-Frost Method" can help you get it with your present compressor.

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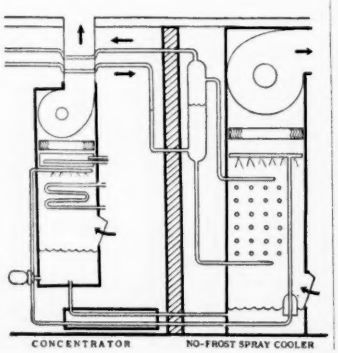
A simple method, easily maintained. Saves a third of your refrigeration cost . . . Ask for Niagara Bulletins 118 and 119.



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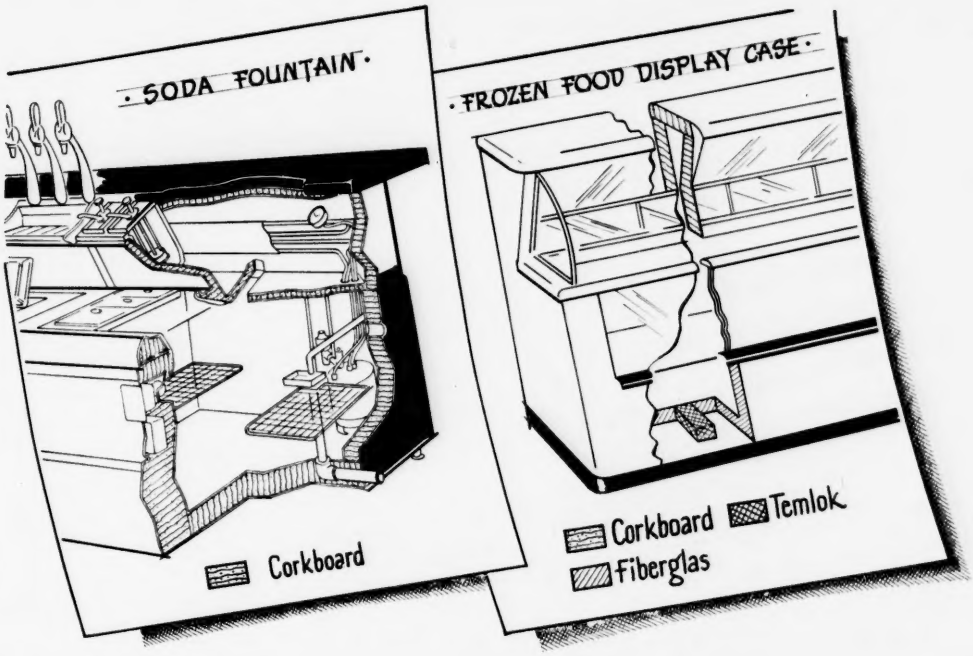


What's the best insulation for partially sealed equipment?

There are many types of refrigerated equipment where positive vapor sealing is impossible or impractical. That makes the insulation and methods used to install it extremely important to refrigerated cabinet performance.

Where cost is not the determining factor, Armstrong's Corkboard is recommended for partially sealed equipment. It has great resistance to moisture, is easily handled, and adds strength to the construction. Large soda fountains, too complex to be perfectly sealed, give longer, lower-cost service if they're cork insulated. By resisting moisture, corkboard can also prolong the life of low-temperature cases where a moving curtain of air will force moisture through any break in the inner liner and into the insulation. In equipment with two widely varying temperature zones cooled independently, the pressures set up by the great temperature differentials can drive moisture through the smallest opening in the construction. Here again, corkboard's high resistance to moisture means better performance.

In equipment where cost is the primary consideration, Fiberglas* insulation is widely used. Manufacturers of low-price display cases and reach-in boxes, for example, who cannot justify the expense of perfectly sealed construction find it an excellent choice. It is inexpensive, can be readily fabricated to any size or shape, and is easily handled on the production line. And, Fiberglas will not rot or decay on contact with moisture.

When Fiberglas is used, plugs of Armstrong's Corkboard or Temlok® should be set in the insulation at points where air and moisture infiltration is most likely to occur. These materials can be sealed by dipping them in hot asphalt, or a layer of asphaltic sealing compound may be used between the frame and the insulation. The load-bearing properties of corkboard and Temlok recommend them for cabinet bottoms.

When you're designing low-temperature equipment, it pays to contact Armstrong. We offer a complete line of insulating materials and qualified advice on their use. In addition, you may want to use our Life Test Room to performance-check your unit. A few weeks in this room is equal to five years in actual use. There's no charge for this service, and you get a detailed report on the performance of your equipment.

For full information on Armstrong's complete line of insulating materials and life-test service, call your nearest Armstrong office or write direct to Armstrong Cork Co., 4504 Queen Street, Lancaster, Penna.

*®OCFCORP.

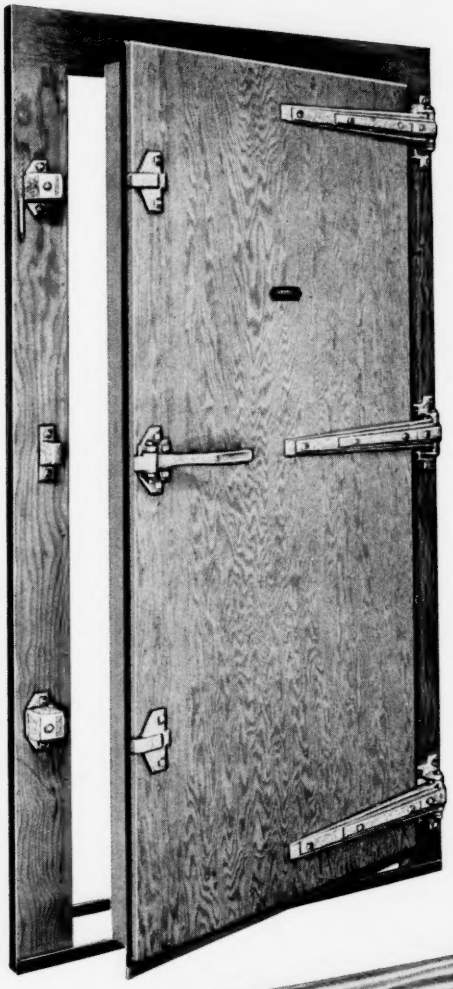
ARMSTRONG'S EQUIPMENT INSULATION

LK CORKBOARD · FIBERGLAS · TEMLOK

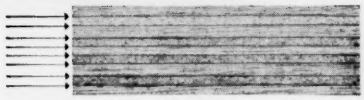
Why "MARINE QUALITY" Plywood

with plastic bonding

makes Series "50" the finest cold storage door ever built



PLASTIC BOND GIVES EXTRA STRENGTH



Synthetic resin bond used between all plies. Uniform strength of bond and stress equalization assured by hot pressing and tempering after setting.

INSOLUBLE PLASTIC MAKES BOND WATERPROOF

SOAK IT

Passes test of alternate soaking 16 hours and drying 8 hours, repeated three times without affecting bond.

BOIL IT

Plastic bond passes four-hour boil test without any separation at plies.

PLASTIC BONDING IMPROVES SANITATION

Inorganic nature of bond will not support bacteria or fungi.

Monopanel Construction of Series "50" Doors Gives You These Other Advantages

- **Smooth One-Piece Panels**—Look better, easier to keep clean.
- **7 Times Stronger**—By test compared with horizontal sheathing. Cross lamination of plies distributes strength equally in both directions.
- **6 Times More Rigid**—By test compared with horizontal sheathing. Large one-piece panels front and back give extra rigidity of box frame construction.
- **Rugged Adjustable Hardware**—E-Z-Open TWO Point Fastener and Adjustoflex hinges specially developed by Jamison to maintain uniform gasket pressure.
- **Dependable Gasketing**—Resilient Lo-Temp gasket for top and sides and tough flexible Sillseal gasket for door sill.

JAMISON

HAGERSTOWN, MARYLAND, U. S. A.

For details and dimensions request Jamison Catalog No. 3. Jamison Cold Storage Door Company, Hagerstown, Md., U.S.A.